

Service Service Service



Service Manual

COMPACT
disc
DIGITAL AUDIO

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Version 1.0



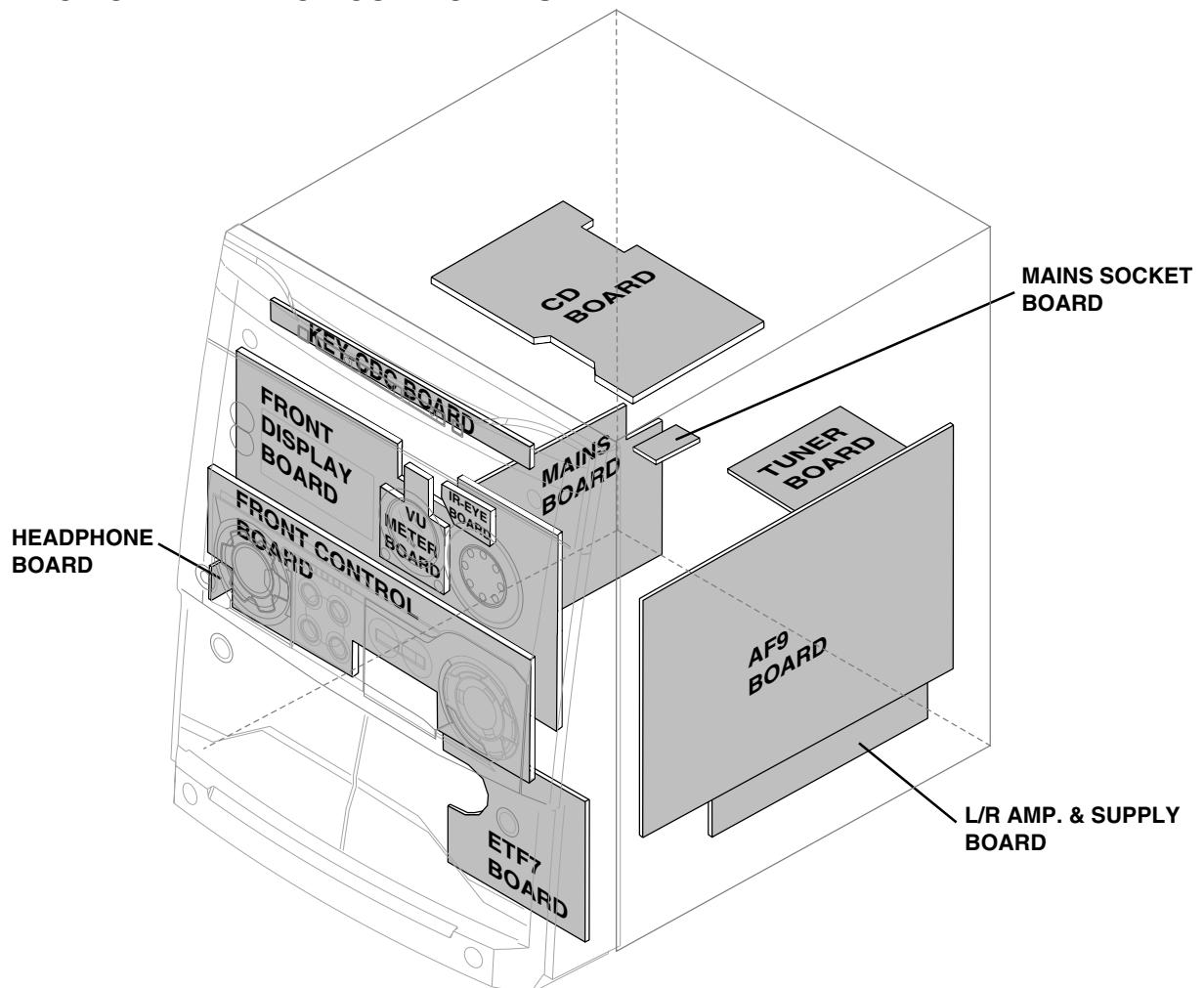
**CLASS 1
LASER PRODUCT**

GB

3139 785 30015

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

SPECIFICATIONS**GENERAL:**

Mains voltage : 110-127V/220-240V Switchable for /21/21M
 120V for /37
 220V for /33
 220-230V for /22/34
 230-240V for /30

Mains frequency : 50/60Hz

Power consumption : < 1W at ECO Power Standby
 : 25W at Standby (DEMO mode off)
 : 175W at Active

Clock accuracy : < 4 seconds per day

Dimension centre unit : 265 x 310 x 390mm

TUNER:**FM**

Tuning range : 87.5-108MHz
 65.81-74MHz for /34¹⁾
 Grid : 50kHz (& 30kHz for /34)
 100kHz for /37
 IF frequency : 10.7MHz ± 25kHz
 Aerial input : 75Ω coaxial
 300Ω click fit for /37
 Sensitivity at 26dB S/N : < 7µV
 Selectivity at 600kHz bandwidth : > 25dB
 Image rejection : > 25dB
 Distortion at RF=1mV, dev. 75kHz : < 3%
 -3dB Limiting point : < 8µV
 Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
 530-1700kHz for /21/21M/37
 Grid : 9kHz
 10kHz for /21/21M/37
 IF frequency : 450kHz ± 1kHz
 Aerial input : Frame aerial
 Sensitivity at 26dB S/N : < 4.0mV/M
 Selectivity at 18kHz bandwidth : > 18dB
 IF rejection : > 45dB
 Image rejection : > 28dB
 Distortion at RF=50mV, m=80% : < 5%

LW

Tuning range : 153-279kHz /22
 Grid : 3kHz
 IF frequency : 450kHz ± 1kHz
 Aerial input : Frame aerial
 Sensitivity at 26dB S/N : [< 7.0mV/M]
 Selectivity at 18kHz bandwidth : [> 24dB]
 IF rejection : [> 30dB]
 Image rejection : [> 30dB]
 Distortion at RF=50mV, m=80% : [< 5%]

AMPLIFIER:

Output power (6Ω, 1kHz, 10% THD)
 L & R : 2 x 140W RMS /21

Output power (6Ω, 60Hz-12.5kHz, 10% THD)
 L & R : 2 x 110W FTC /37

Frequency response within -3dB : 50Hz-20kHz
 Incredible Surround : ON/OFF
 MAX Sound : ON/OFF
 Digital Sound Control (DSC) : Digital, Rock, Pop,
 Newage, Classic, Electric
 Virtual Ambience Control (VAC) : Hall, Concert, Cinema,
 Disco, Arcade, Cyber
 Dynamic Bass Boost (DBB) : BEAT, PUNCH, BLAST,
 DBB OFF

Input sensitivity

Aux in : 500mV ± 3dB at 1kHz
 CDR in : 1V ± 3dB at 1kHz

Output sensitivity

Headphone output at 32Ω : 700mV ± 3dB

CASSETTE RECORDER:

Number of track : 2 x 2 stereo
 Tape speed : 4.76 cm/sec ± 2%
 Wow and flutter : < 0.4% DIN
 Fast-wind/Rewind time C60 : 130 sec
 Bias system : 78kHz ± 10kHz
 Rec/Pb frequency response within 8dB : 80Hz - 10kHz
 Signal to Noise Ratio (Type I) : > 48dBA

COMPACT DISC:

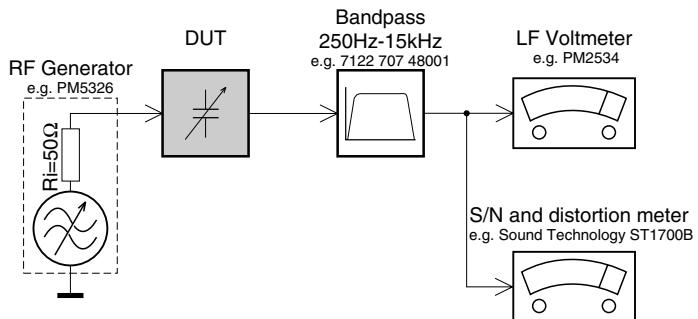
Measurement done at output conn. of the CDC module.
 Frequency response : < ±1.5dB for 20Hz-20kHz
 Output Voltage (in Vrms) : 500mV ± 1dB unloaded
 Signal to Noise Ratio (A-weighted) : > 80dBA
 Distortion at 1kHz : < 0.02%
 Channel Unbalance : < ±1dB
 Channel Separation (1kHz) : > 60dB
 De-emphasis : 0 or 15/50 mS (Switched by subcode
 on the disc)

[...] Values indicated are for "ECO6 Cenelec Board" only.

¹⁾ Default setting is OFF, to switch on please refer page 3-4.

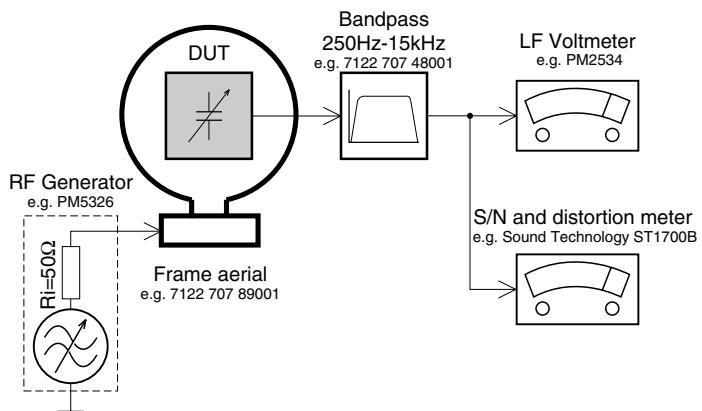
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

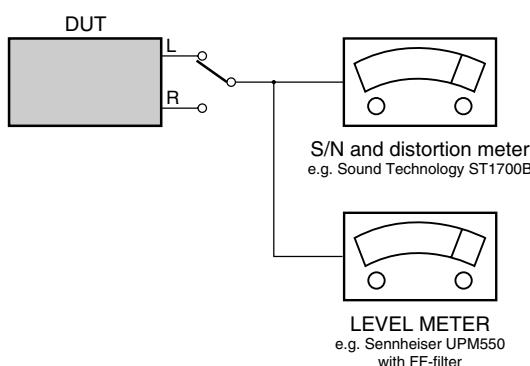
Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.
Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

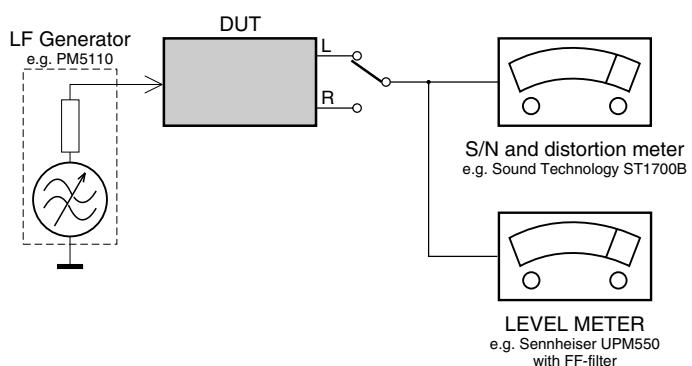
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



Recorder

Use Universal Test Cassette **CrO₂** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder	4822 395 91019
Torx bit T10 150mm	4822 395 50456
Torx driver set T6 - T20	4822 395 50145
Torx driver T10 extended	4822 395 50423

Cassette:

SBC419 Test cassette CrO2	4822 397 30069
SBC420 Test cassette Fe	4822 397 30071
MTT150 Dolby level 200nWb/M	4822 397 30271

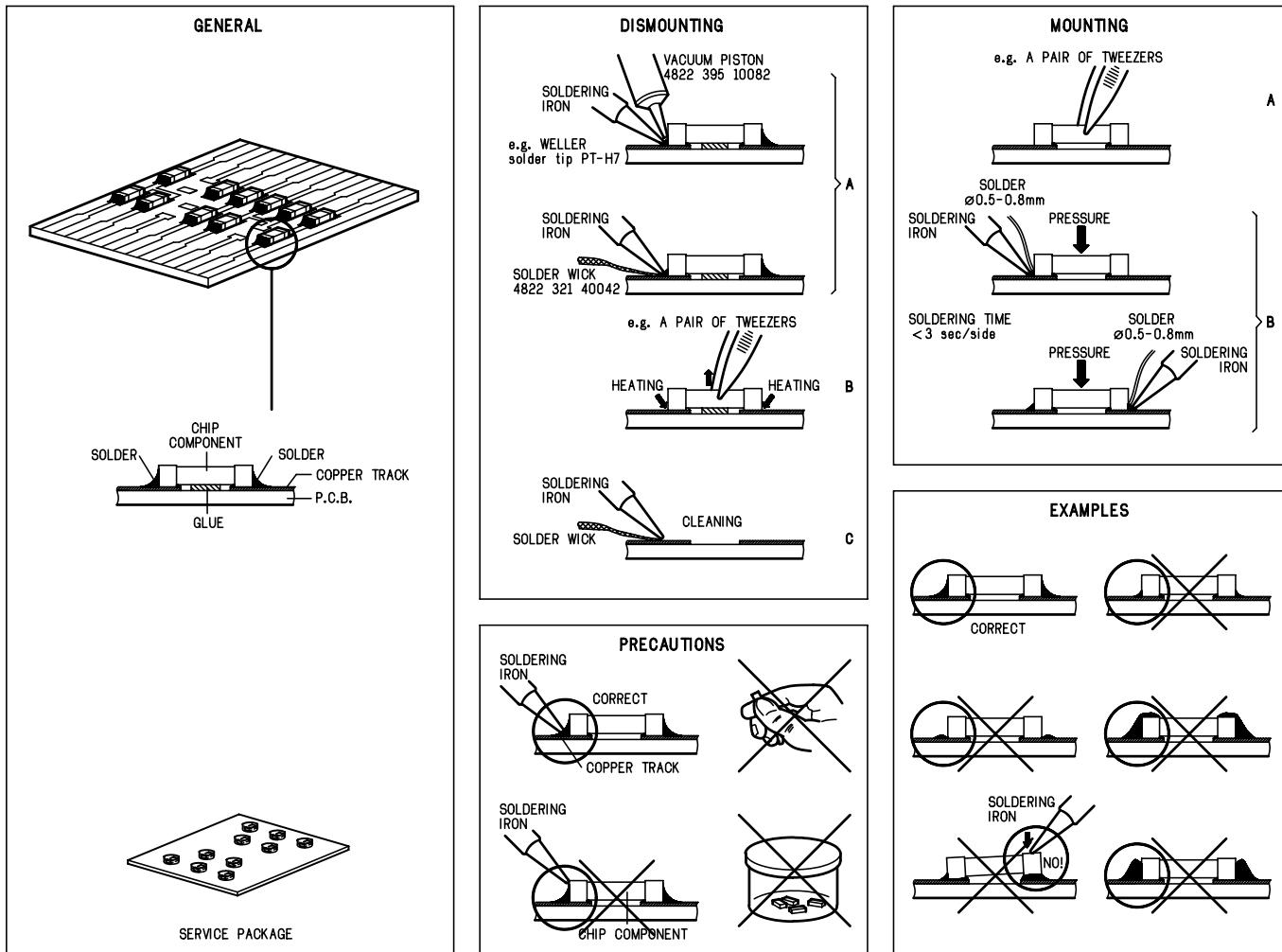
Compact Disc:

SBC426/426A Test disc 5 + 5A	4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz	4822 397 30155
SBC429 Audio Signals disc	4822 397 30184
Dolby Pro-logic Test Disc	4822 395 10216

ESD Equipment:

Anti-static table mat - large 1200x650x1.25mm	4822 466 10953
Anti-static table mat - small 600x650x1.25mm	4822 466 10958
Anti-static wristband	4822 395 10223
Connector box (1MΩ)	4822 320 11307
Extension cable (to connect wristband to conn. box)	4822 320 11305
Connecting cable (to connect table mat to conn. box)	4822 320 11306
Earth cable (to connect product to mat or box)	4822 320 11308
Complete kit ESD3 (combining all above products)	4822 320 10671
Wristband tester	4822 344 13999

HANDLING CHIP COMPONENTS



GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD). Careless handling during repair can reduce life drastically.

When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance. Keep components and tools also at this potential.

ESD**NL** WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD). Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen. Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat. Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation. Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité. Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD). Unsorgfältige Behandlung im Reparaturfall kann die Lebensdauer drastisch reduzieren. Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes. Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD). La loro longevità potrebbe essere fortemente ridotta in caso di non osservazione della più grande cautela alla loro manipolazione. Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza. Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

**F**

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

GB Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

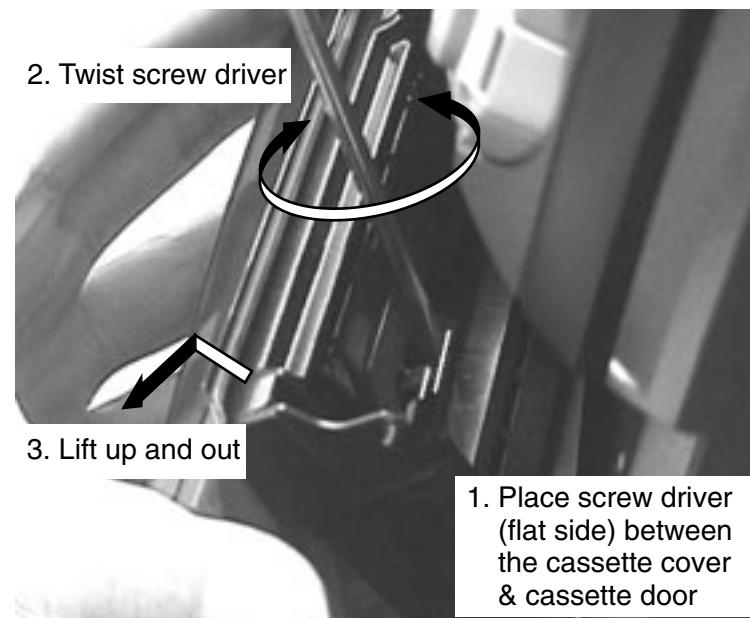
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso sääteenseen!

DK Advarse !

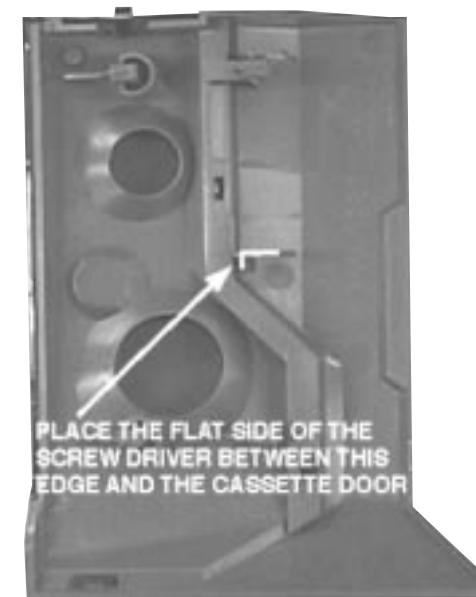
Usynlig laserstrålning ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsættelse for stråling.

DISMANTLING INSTRUCTIONS

Dismantling of the Cassette Cover



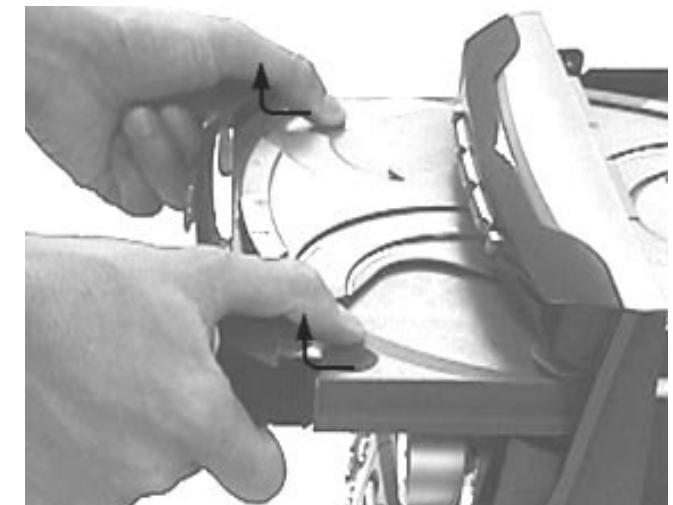
Remove Cassette Cover



Cassette Cover

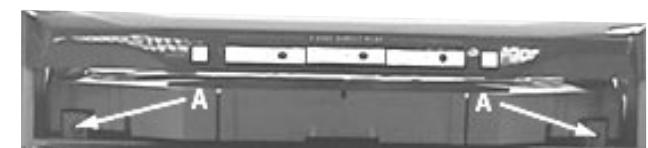
Dismantling of the CDC Module and Front Panel Assembly

- 4) Remove the Cover Tray CDC (pos 106) as indicated.



Remove Cover Tray CDC

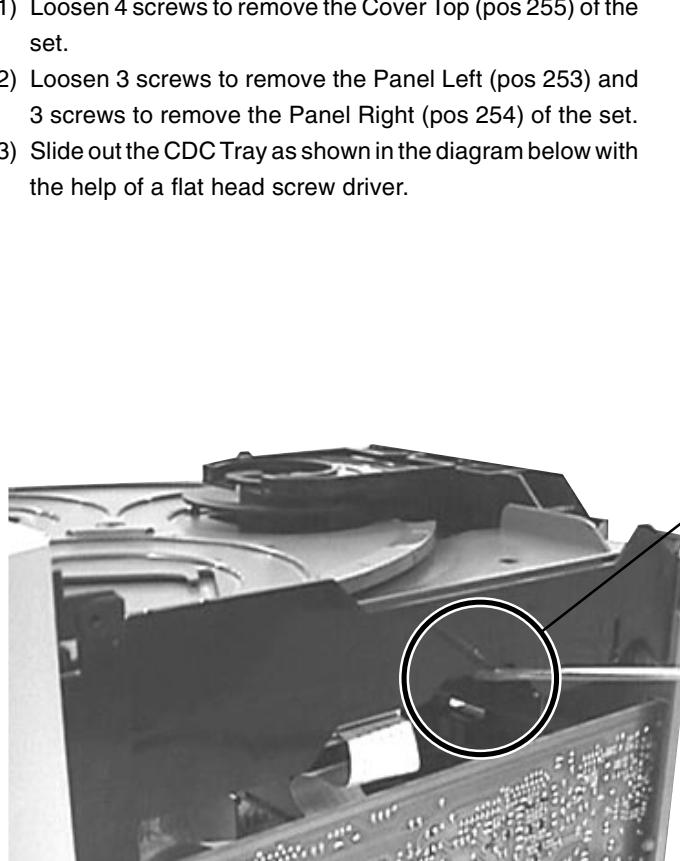
- 5) Loosen 2 screws A and 2 screws B to remove the CDC Module (pos 1105) as indicated.
- 6) Remove 2 screws (pos 226) at the bottom to separate the Front Panel Assembly from the Plate Bottom (pos 265).



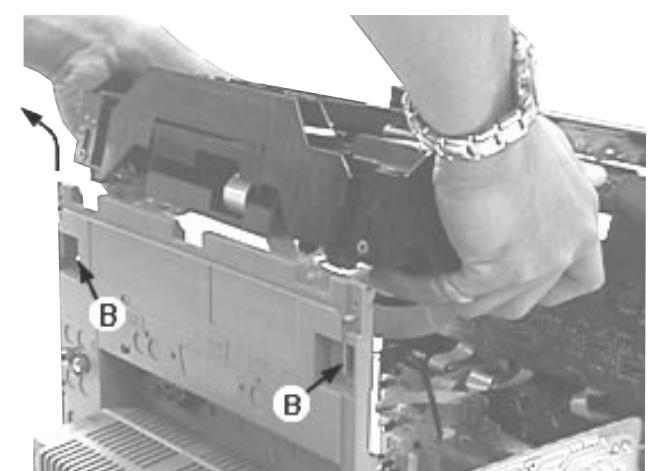
Front View CDC

Dismantling of the CDC Module and Front Panel Assembly

- 1) Loosen 4 screws to remove the Cover Top (pos 255) of the set.
- 2) Loosen 3 screws to remove the Panel Left (pos 253) and 3 screws to remove the Panel Right (pos 254) of the set.
- 3) Slide out the CDC Tray as shown in the diagram below with the help of a flat head screw driver.



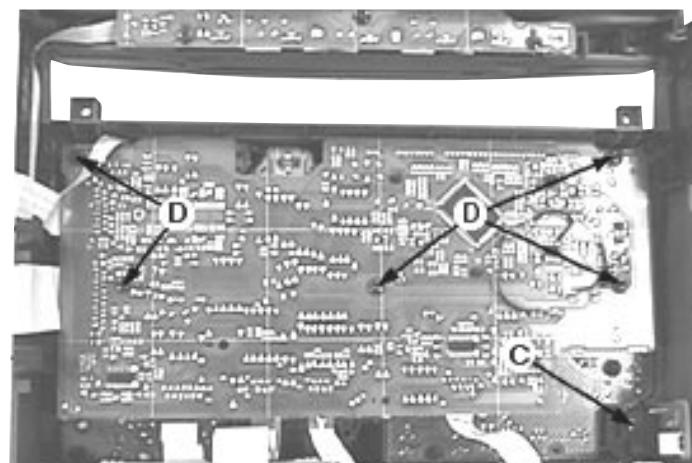
Sliding out the CDC Tray



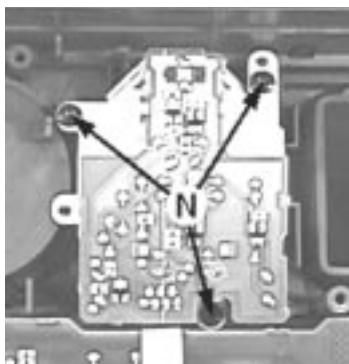
Remove CDC Module

Dismantling of the Front Display Board and Front Control Board

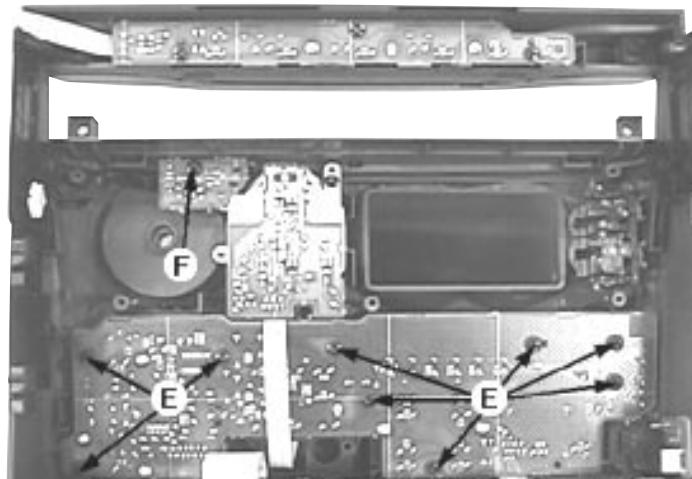
- 1) Remove 1 screw C as indicated to loosen the Headphone Board (pos 1101-B).
- 2) Remove 5 screws D as indicated to loosen the Front Display Board (pos 1101-A).
- 3) Remove 9 screws E as indicated to loosen the Front Control Board (pos 1107-A).
- 4) Remove 1 screw F as indicated to loosen the IR-Eye Board (pos 1107-D).
- 5) Remove 3 screws N as indicated to loosen the VU Meter Board (pos 1107-C).



Remove Front Display Board and Headphone Board



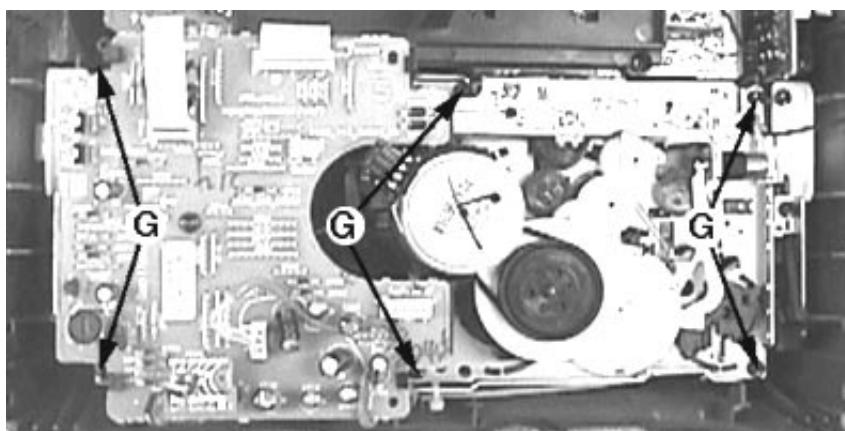
Remove VU Meter Board



Remove Front Control Board and IR-Eye Board

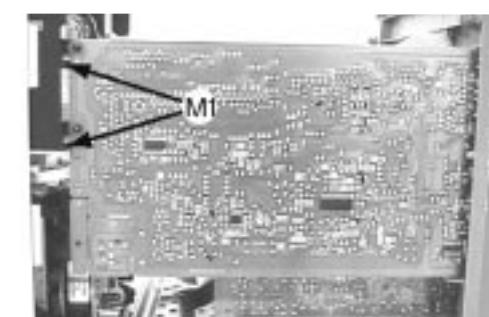
Dismantling of the ETF Tape Module

- 1) Remove 6 screws G as indicated to loosen the ETF Tape Module (pos 1104).

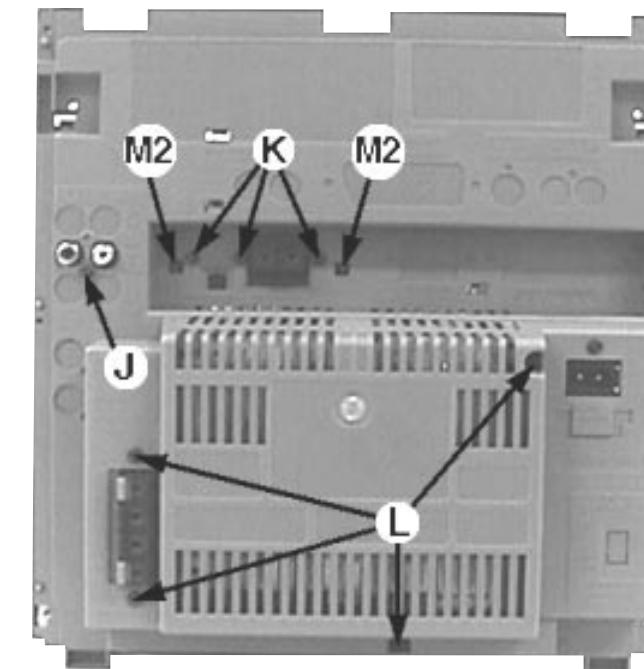


Dismantling of the Rear Portion

- 1) Remove 1 screw J and uncatch M1 as indicated to loosen the AF Board (pos 1102-A).
- 2) Remove 3 screws K and uncatch M2 as indicated to loosen the Tuner Board (pos 1103).
- 3) Remove 4 screws L as indicated to loosen the Panel Rear (pos 256).



Remove AF Board



Repair Hints

- 1) The Knob Volume Black (pos 117) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 1.

Picture 1



- 2) The Knob Jog Rotary (pos 140) can be remove by inserting a strong string into the slot and pull it out in the direction as indicated. See picture 2.

Picture 2



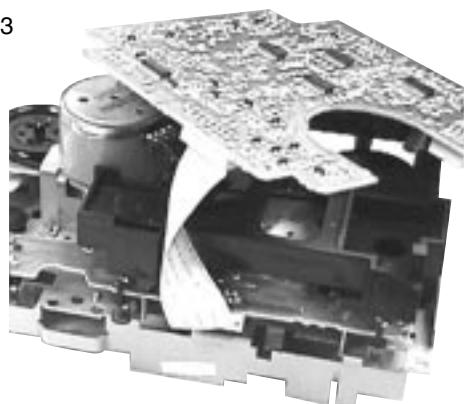
Repair Hints

3) During repair it is possible to disconnect the Tuner board and CDC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

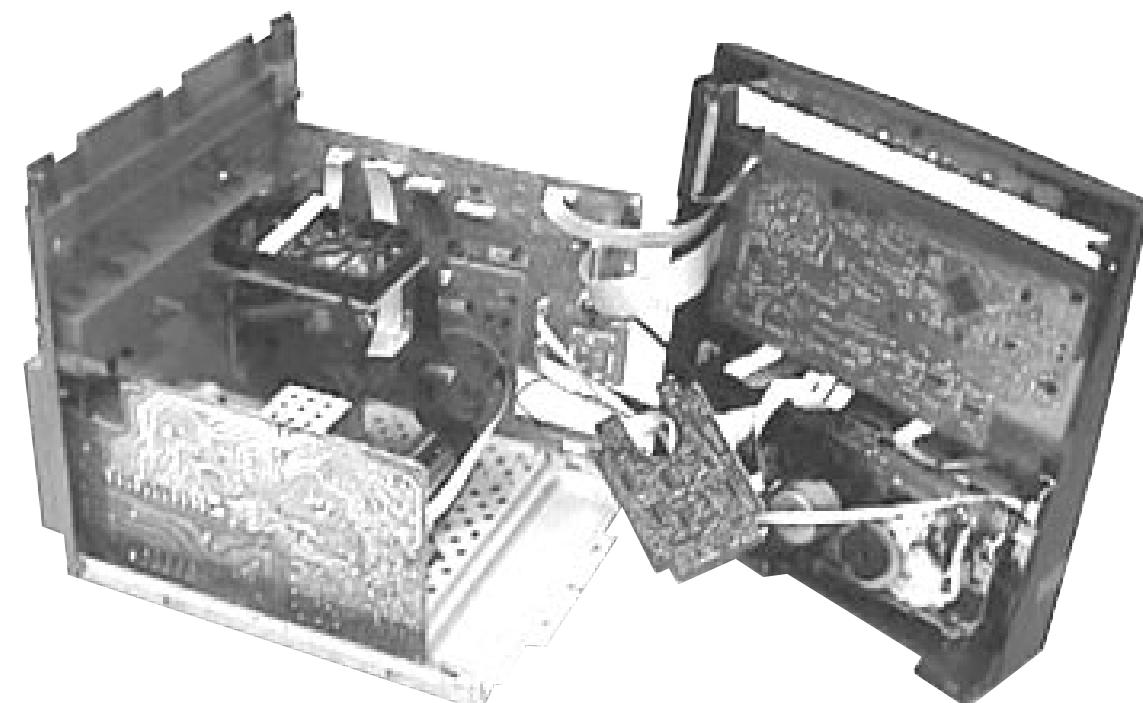
4) Due to the short flex cable wires in the ETF Module, the pc board should be disconnected and reconnected on the reverse side of the tape mechanism to keep it electrically connected during repair. See picture 3.

Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occur.

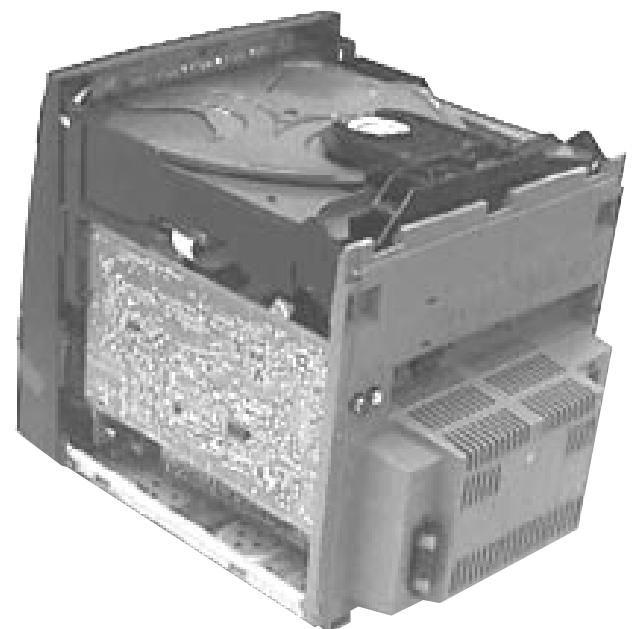
Picture 3



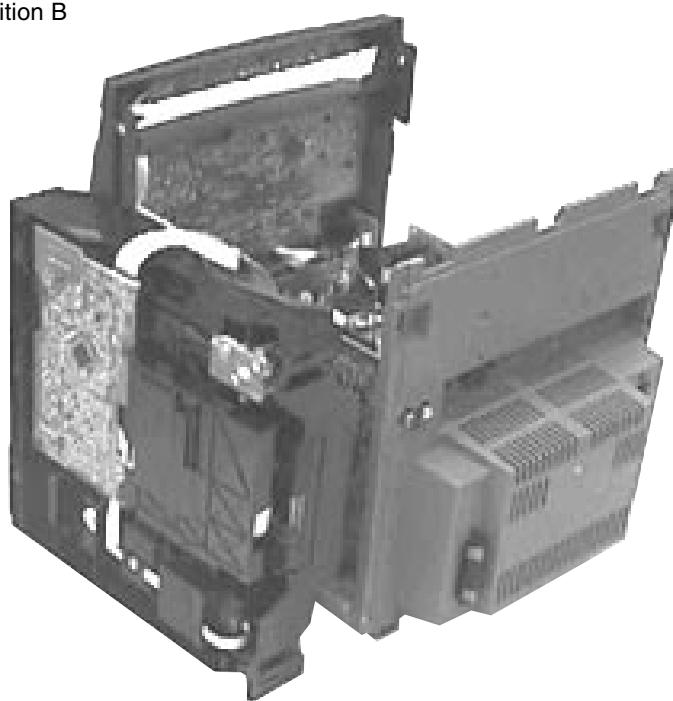
Service position C



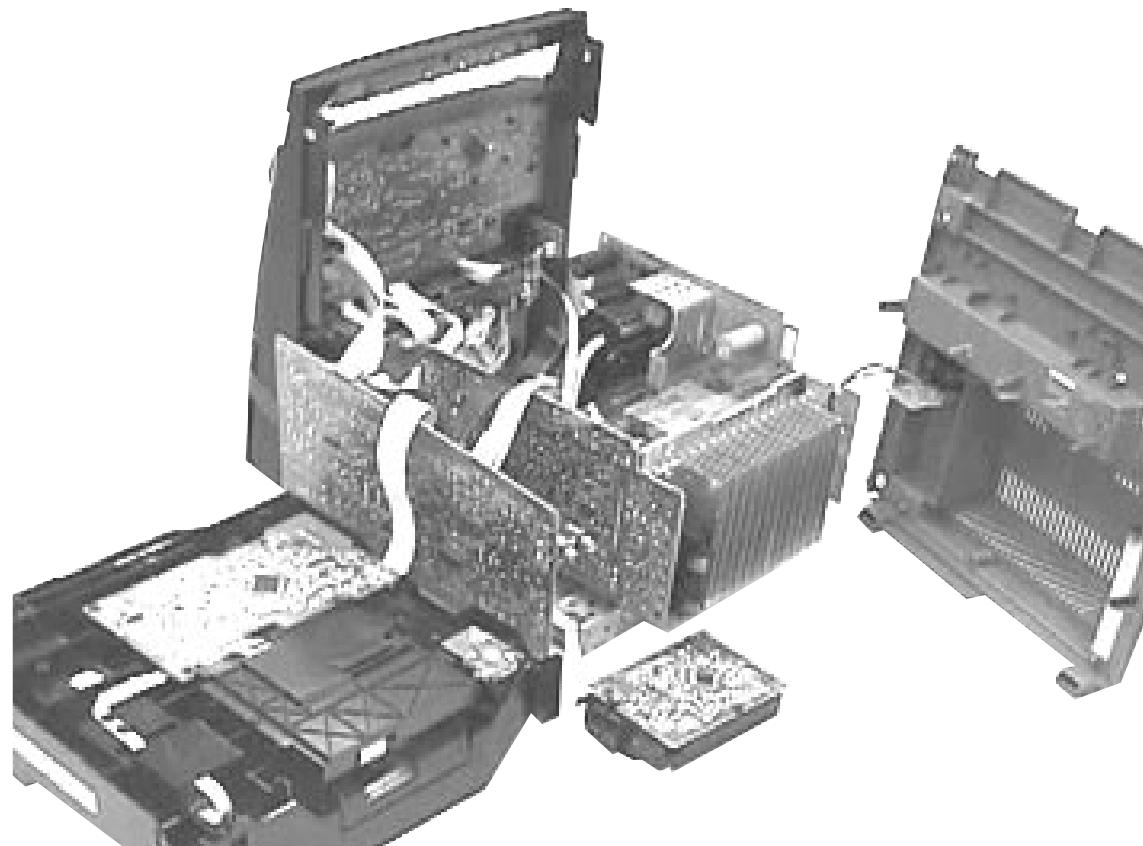
Service position A



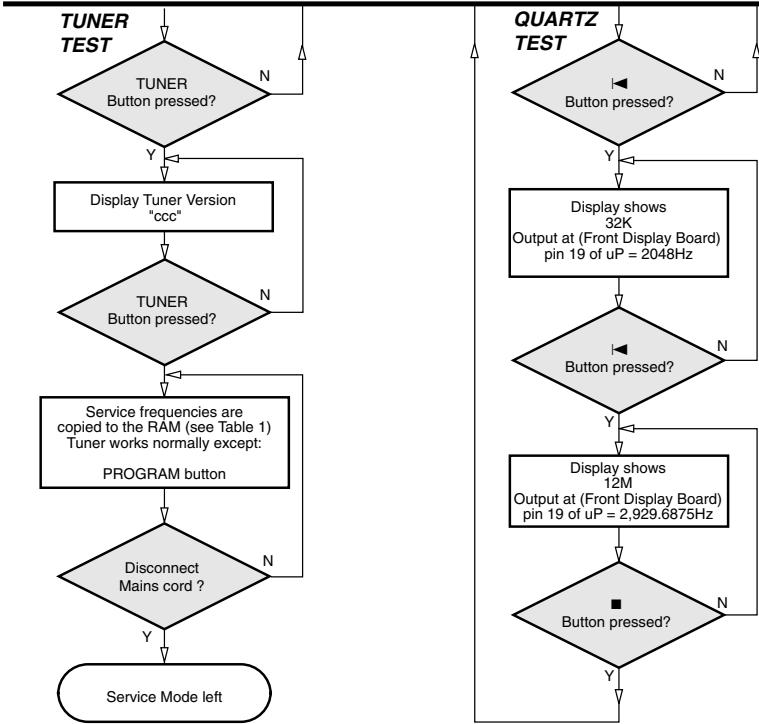
Service position B



Service position D



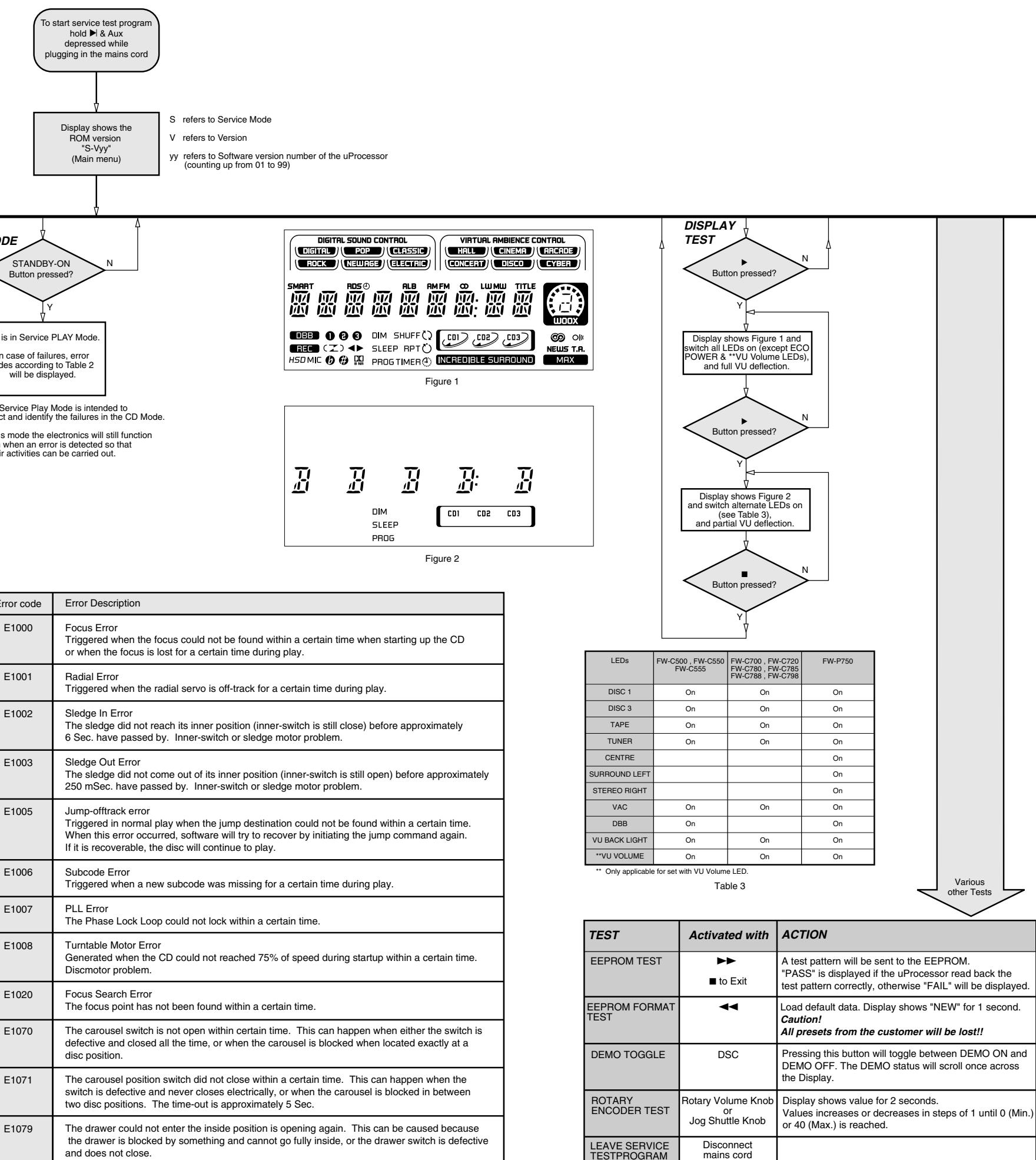
SERVICE TEST PROGRAM



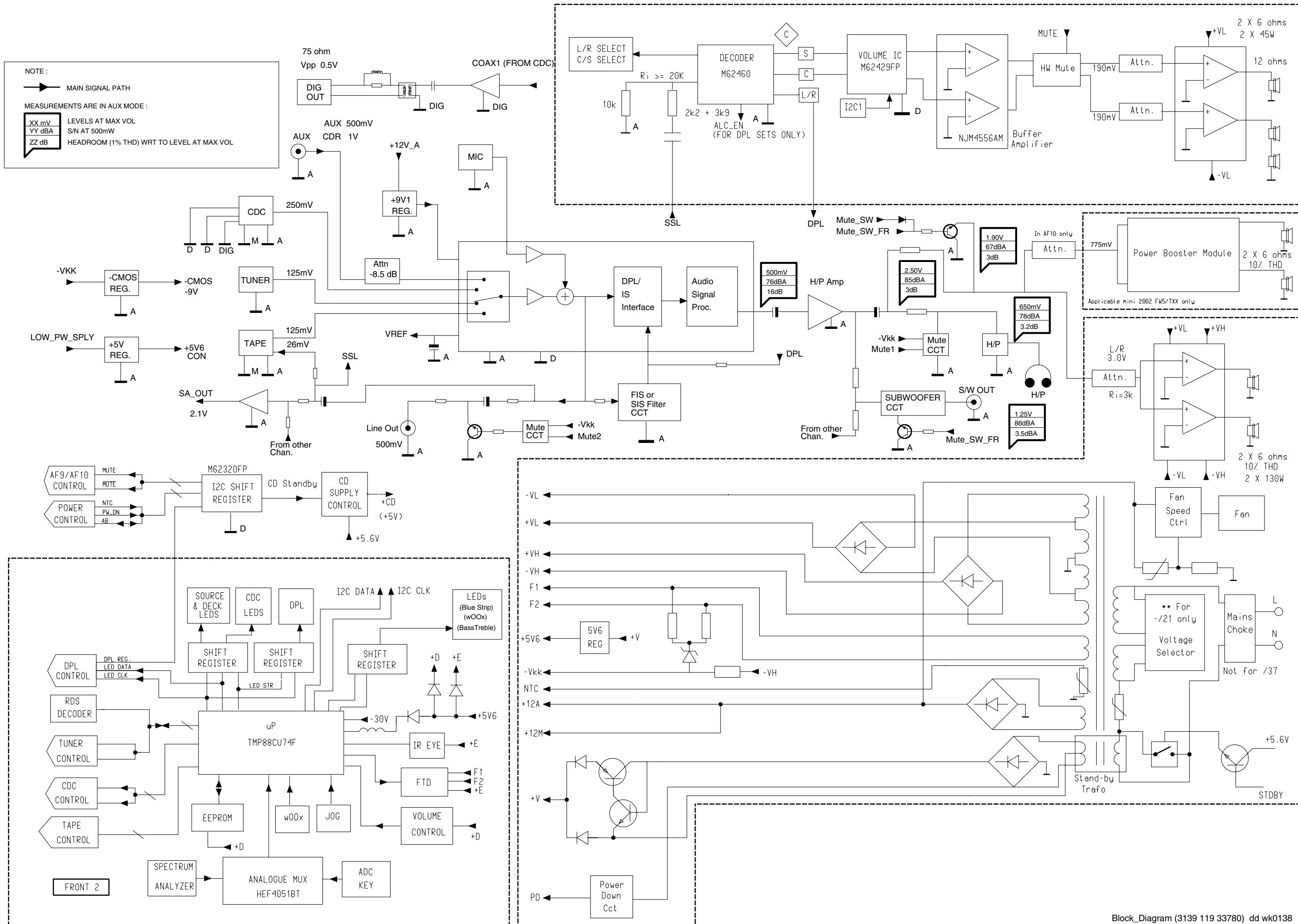
PRESET	Europe "EUR"	East Eur. "EAS"	East Eur. Extended-band "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	153kHz	87.5MHz	558kHz	98MHz	87.5/98MHz*
8	279kHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	198kHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	98MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	87.5MHz	98MHz	65.81MHz	87.5MHz	98/87.5MHz*

Table 1

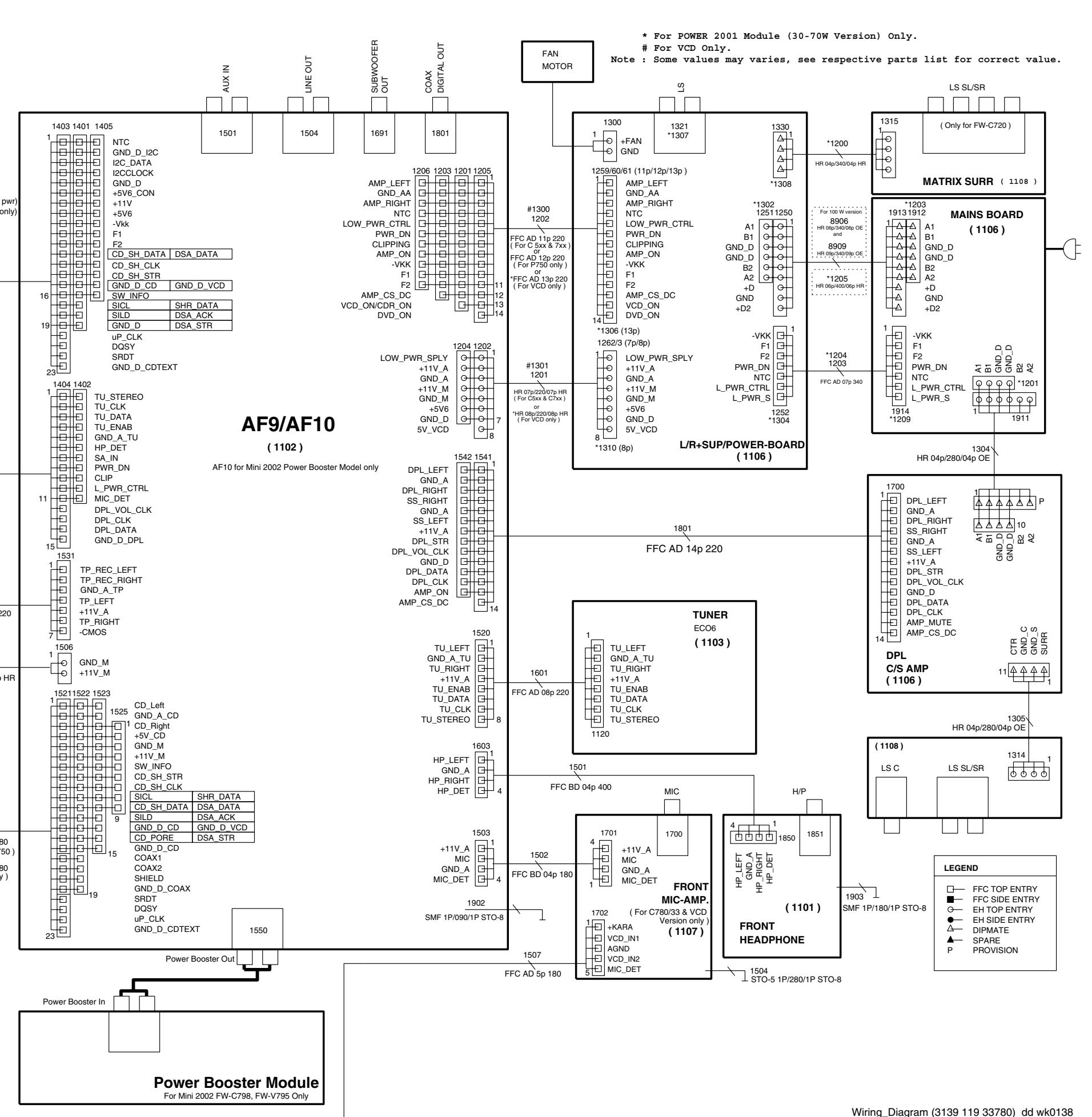
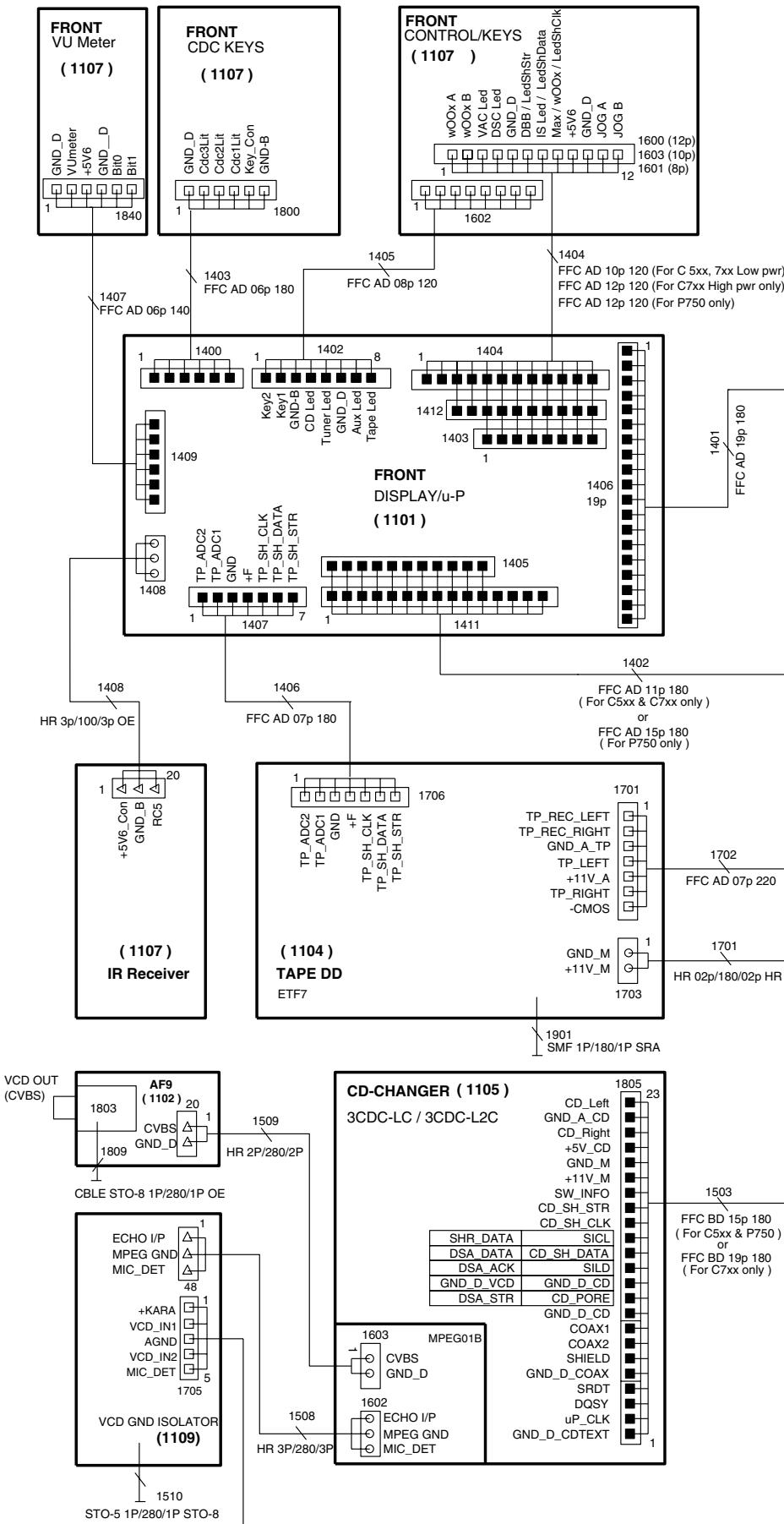
Note: * Depending on the selected grid frequency (9 or 10kHz)
 By holding the TUNER and ▶ buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
 - the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
 - the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.



SET BLOCK DIAGRAM



SET WIRING DIAGRAM



REMARKS :

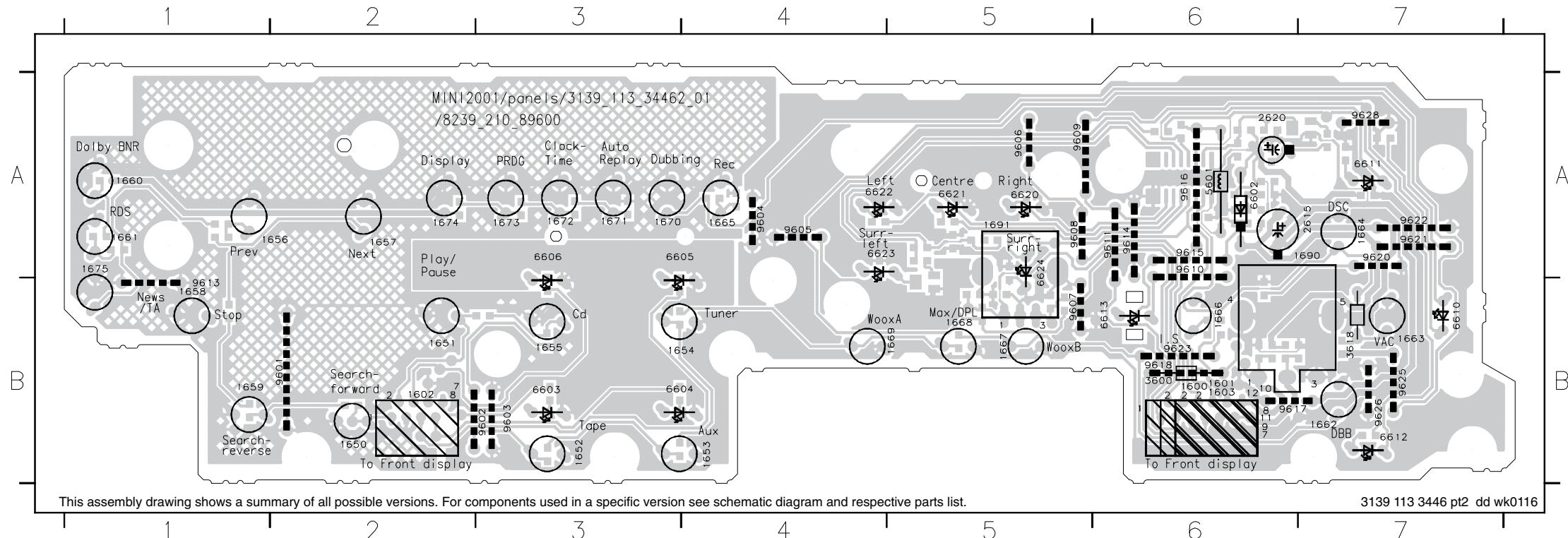
FRONT CONTROL BOARD

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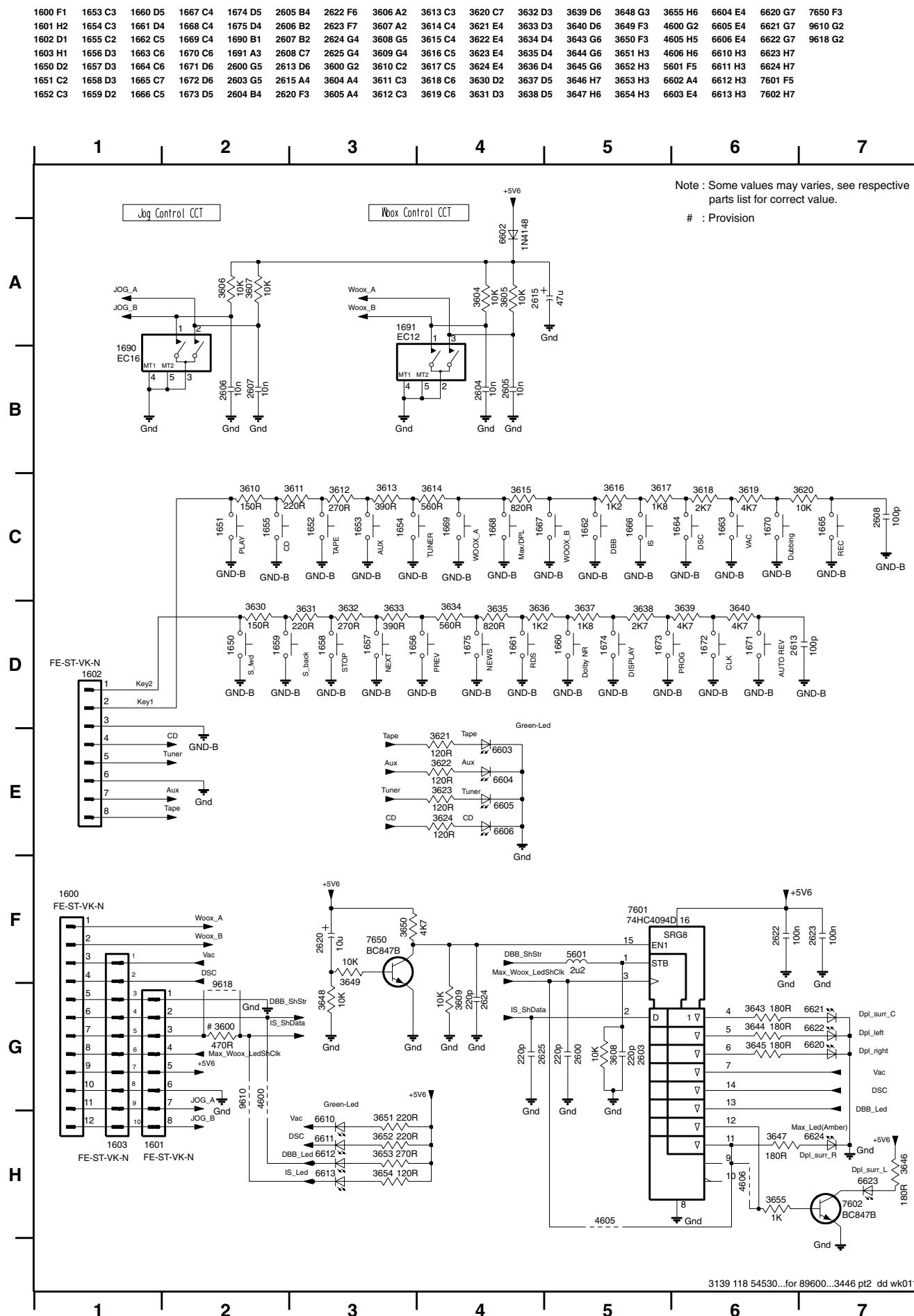
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FRONT CONTROL BOARD - COMPONENT LAYOUT

1600 B6 1650 B2 1654 B3 1658 B1 1662 B7 1666 B6 1670 A3 1674 A2 2615 A7 5601 A6 6605 A3 6612 B7 6622 A4 9602 B3 9606 A5 9610 A6 9615 A6 9620 A7 9625 B7
 1601 B6 1651 B2 1655 B3 1659 B1 1663 B7 1667 B5 1671 A3 1675 A1 2620 A6 6602 A6 6606 A3 6613 B6 6623 A4 9603 B3 9607 B5 9611 A6 9616 A6 9621 A7 9626 B7
 1602 B2 1652 B3 1656 A2 1660 A1 1664 A7 1668 B5 1672 A3 1690 A7 3600 B6 6603 B3 6610 B7 6620 A5 6624 A5 9604 A4 9608 A5 9613 B1 9617 B6 9622 A7 9628 A7
 1603 B6 1653 B4 1657 A2 1661 A1 1665 A4 1669 B5 1673 A3 1691 A5 3618 B7 6604 B3 6611 A7 6621 A5 9601 B2 9605 A4 9609 A5 9614 A6 9618 B6 9623 B6

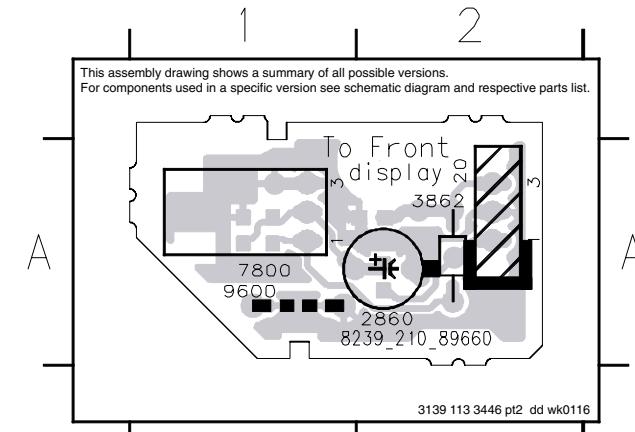


FRONT CONTROL BOARD - CIRCUIT DIAGRAM



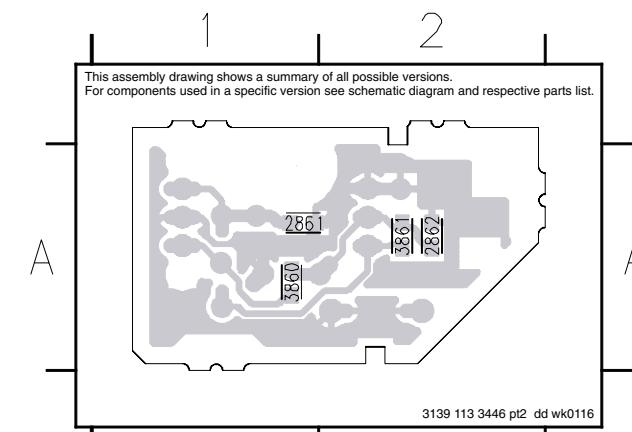
IR-EYE BOARD - COMPONENT LAYOUT

20 A2 3862 A2 9600 A1
2860 A2 7800 A1



IR-EYE BOARD - CHIP LAYOUT

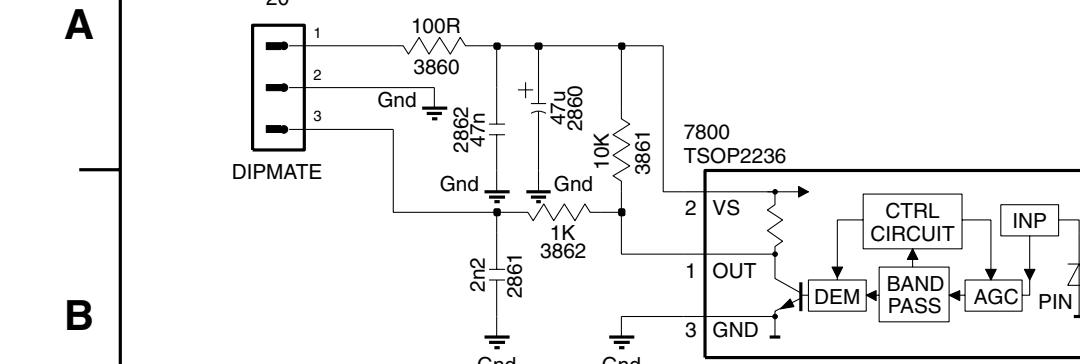
2861 A1 2862 A2 3860 A1 3861 A2

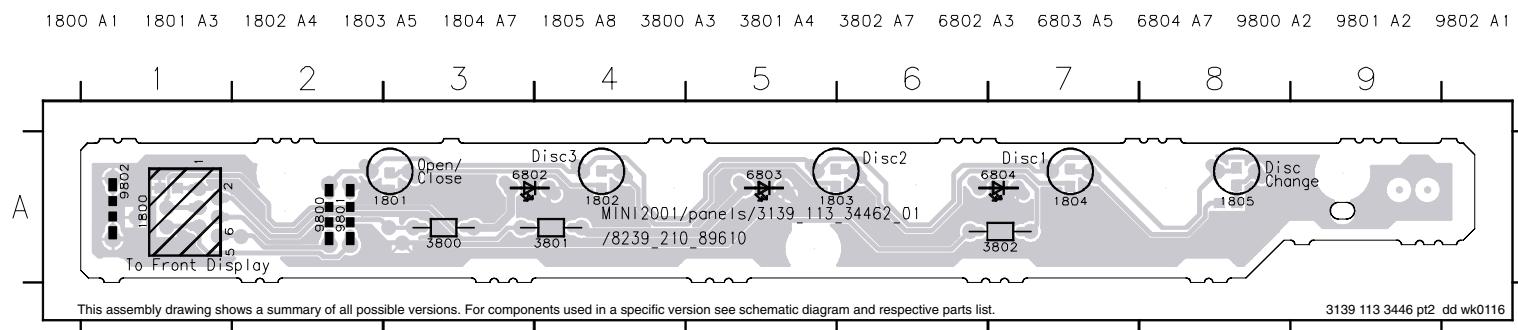
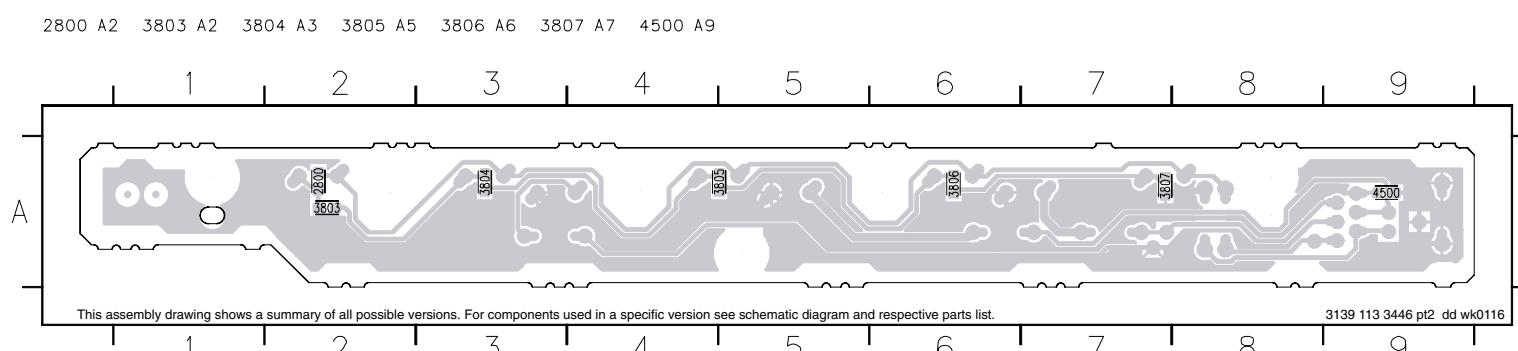
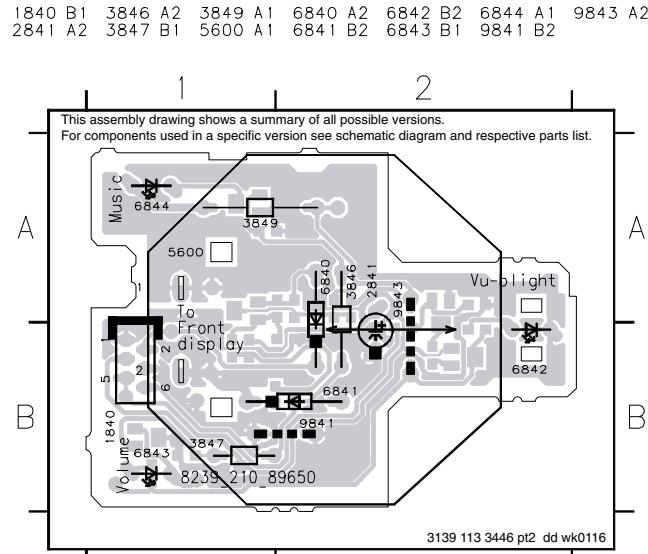
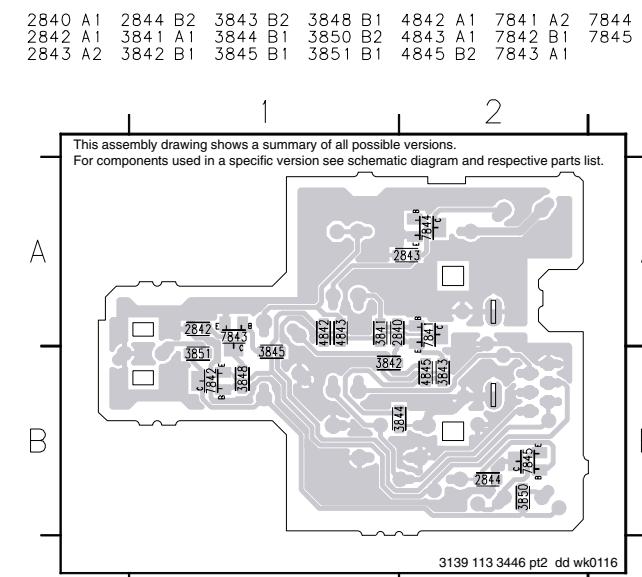


IR-EYE BOARD - CIRCUIT DIAGRAM

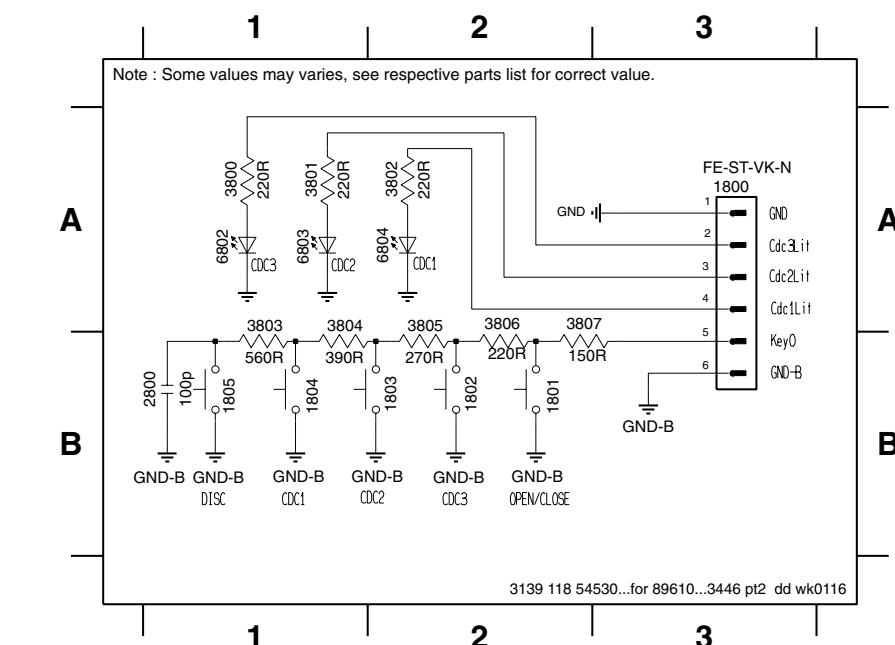
20 A1 2860 A2 2861 B1 2862 A1 3860 A1 3861 A2 3862 B2 7800 A2

Note : Some values may varies, see respective parts list for correct value.

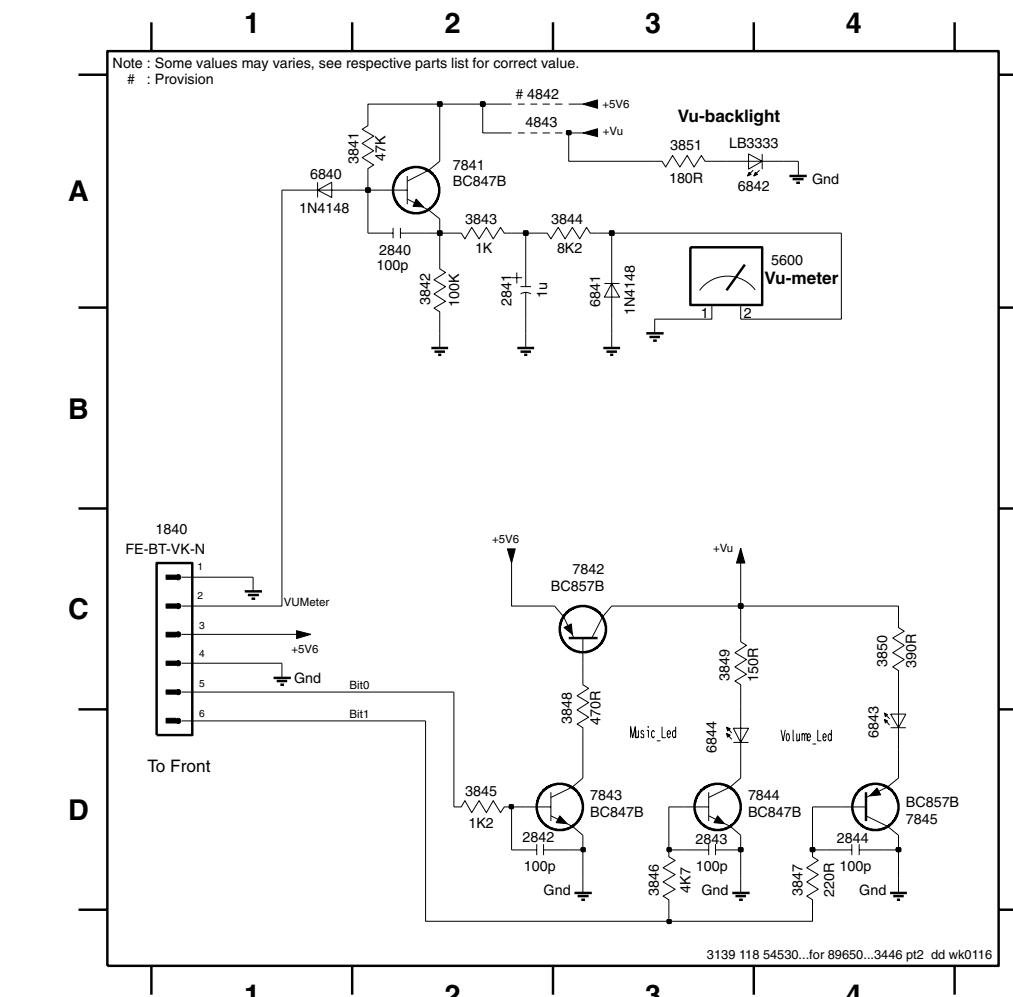


KEY-CDC BOARD - COMPONENT LAYOUT**KEY-CDC BOARD - CHIP LAYOUT****VU METER BOARD - COMPONENT LAYOUT****VU METER BOARD - CHIP LAYOUT****KEY-CDC BOARD - CIRCUIT DIAGRAM**

1800 A3, 1802 B2, 1804 B1, 2800 B1, 3801 A1, 3803 A1, 3805 A2, 3807 A2, 6803 A1
1801 B2, 1803 B2, 1805 B1, 3800 A1, 3802 A2, 3804 A1, 3806 A2, 6802 A1, 6804 A2

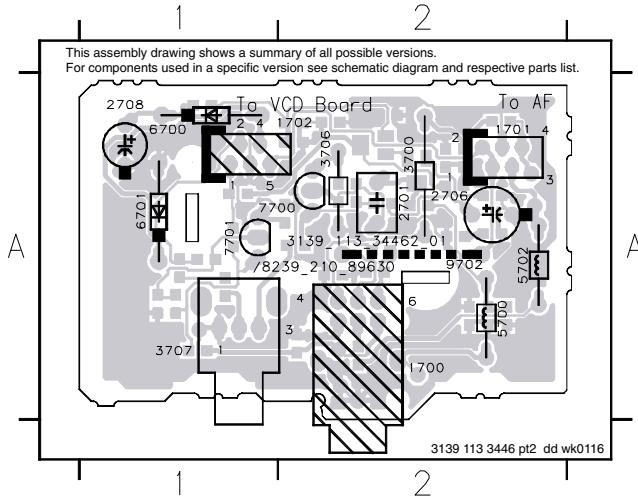
**VU METER BOARD - CIRCUIT DIAGRAM**

1840 C1, 2842 D2, 3841 A2, 3844 A3, 3847 D4, 3850 C4, 4843 A2, 6841 A3, 6844 D3, 7843 D3
2840 A2, 2843 D3, 3842 A2, 3845 D2, 3848 C3, 3851 A3, 5600 A4, 6842 A4, 7841 A2, 7844 D3
2841 A2, 2844 D4, 3843 A2, 3846 D3, 3849 C3, 4842 A2, 6840 A1, 6843 D4, 7842 C3, 7845 D4

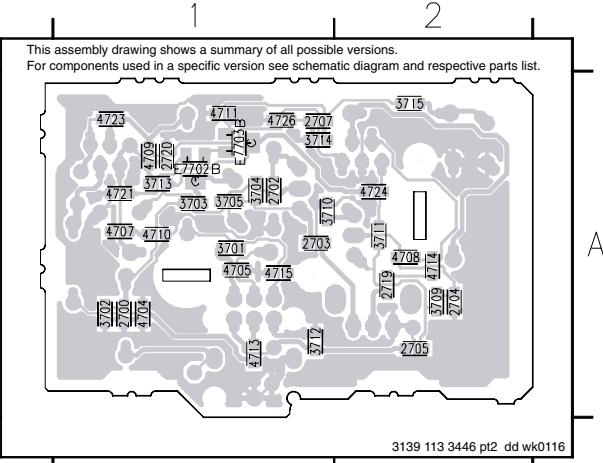


KARAOKE BOARD - COMPONENT LAYOUT

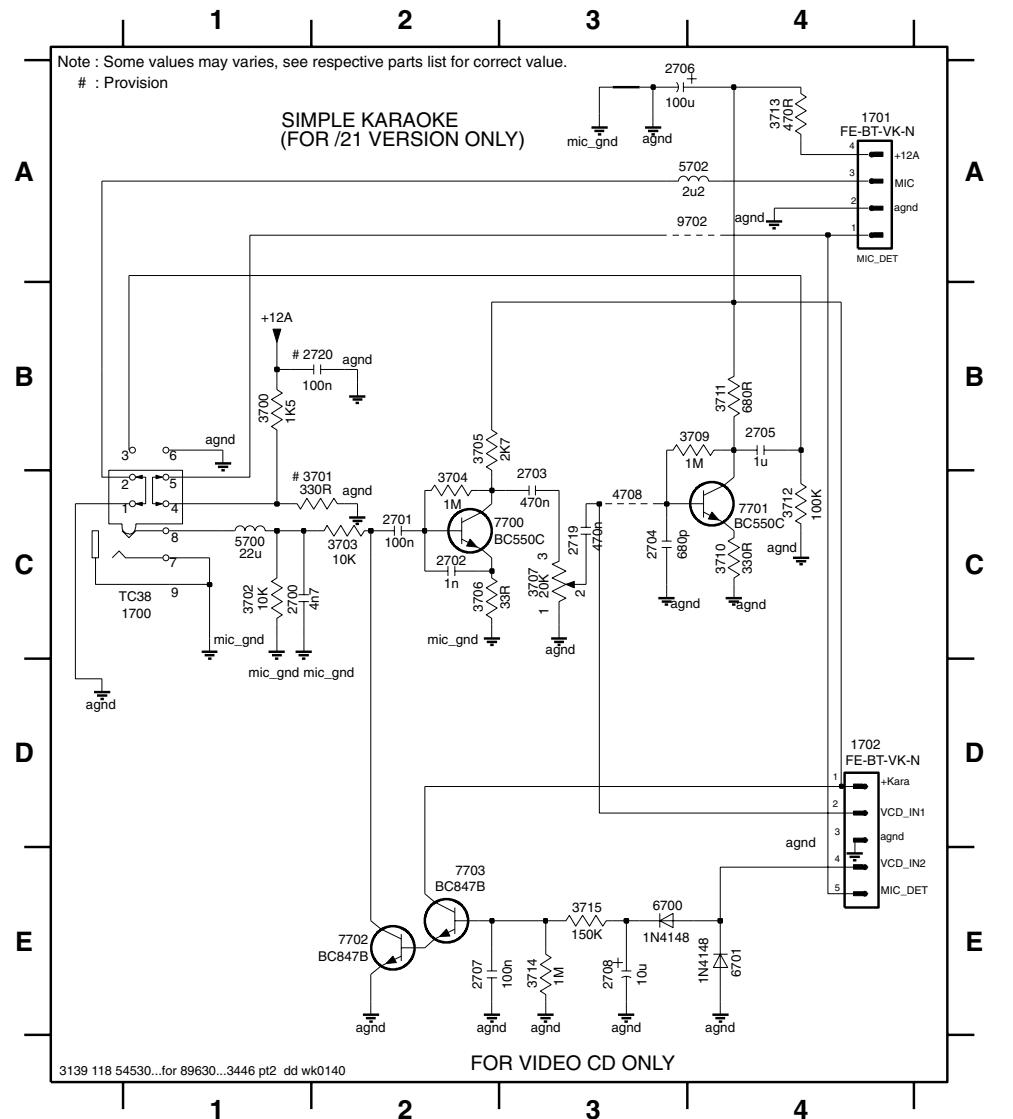
1700 A2 2701 A2 3700 A2 5700 A2 6701 A1 9702 A2
 1701 A2 2706 A2 3706 A2 5702 A2 7700 A1 1702 A2
 2708 A1 3707 A1 6700 A1 7701 A1

**KARAOKE BOARD - CHIP LAYOUT**

2700 A1 2719 A2 3705 A1 3714 A1 4709 A1 4721 A1
 2702 A1 2720 A1 3709 A2 3715 A2 4710 A1 4723 A1
 2703 A1 3701 A1 3710 A1 4704 A1 4711 A1 4724 A2
 2704 A2 3702 A1 3711 A2 4705 A1 4713 A1 4726 A1
 2705 A2 3703 A1 3712 A1 4707 A1 4714 A2 7702 A1
 2707 A1 3704 A1 3713 A1 4708 A2 4715 A1 7703 A1

**KARAOKE BOARD - CIRCUIT DIAGRAM**

1700 C1 2700 C1 2703 C3 2706 A3 2719 C3 3701 C2 3704 C2 3707 C3 3711 B4 3714 E3 5700 C1 6701 E4 7702 E2
 1701 A4 2701 C2 2704 C3 2707 E2 2720 B2 3702 C1 3705 B2 3709 B4 3712 C4 3715 E3 5702 A4 7700 C2 7703 E2
 1702 D4 2702 C2 2705 B4 2708 E3 3700 B1 3703 C2 3706 C2 3710 C4 3713 A4 4708 C3 6700 E3 7701 C4 9702 A4

**ELECTRICAL PARTS LIST - FRONT CONTROL BOARD****MISCELLANEOUS**

1602	4822 265 11535	Flex Connector 8P	3611	4822 051 30221	220R 5% 0,062W
1603	4822 265 11208	Flex Connector 10P	3612	4822 051 30271	270R 5% 0,062W
1650	4822 276 13775	Tact Switch	3613	4822 051 30391	390R 5% 0,062W
1651	4822 276 13775	Tact Switch	3614	4822 051 30561	560R 5% 0,062W
1652	4822 276 13775	Tact Switch	3615	4822 117 12968	820R 5% 0,62W
1653	4822 276 13775	Tact Switch	3616	4822 117 11817	1k2 1% 1/16W
1654	4822 276 13775	Tact Switch	3617	4822 117 12903	1k8 1% 0,063W
1655	4822 276 13775	Tact Switch	3618	4822 116 52263	2k7 5% 0,5W
1656	4822 276 13775	Tact Switch	3619	4822 051 30472	4k7 5% 0,062W
1657	4822 276 13775	Tact Switch	3620	4822 051 30103	10k 5% 0,062W
1658	4822 276 13775	Tact Switch	3621	4822 051 30121	120R 5% 0,062W
1659	4822 276 13775	Tact Switch	3622	4822 051 30121	120R 5% 0,062W
1662	4822 276 13775	Tact Switch	3623	4822 051 30121	120R 5% 0,062W
1663	4822 276 13775	Tact Switch	3624	4822 051 30121	120R 5% 0,062W
1664	4822 276 13775	Tact Switch	3630	4822 051 30151	150R 5% 0,062W
1665	4822 276 13775	Tact Switch	3631	4822 051 30221	220R 5% 0,062W
1666	4822 276 13775	Tact Switch	3632	4822 051 30271	270R 5% 0,062W
1668	4822 276 13775	Tact Switch	3633	4822 051 30391	390R 5% 0,062W
1670	4822 276 13775	Tact Switch	3634	4822 051 30561	560R 5% 0,062W
1671	4822 276 13775	Tact Switch	3635	4822 117 12968	820R 5% 0,62W
1672	4822 276 13775	Tact Switch	3636	4822 117 11817	1k2 1% 1/16W
1673	4822 276 13775	Tact Switch	3637	4822 117 12903	1k8 1% 0,063W
1674	4822 276 13775	Tact Switch	3638	4822 051 30272	2k7 5% 0,062W
1690	2422 129 16385	Rotary Encoder 12P	3639	4822 051 30472	4k7 5% 0,062W
1800	4822 265 11207	Flex Connector 6P	3640	4822 051 30103	10k 5% 0,062W
1801	4822 276 13775	Tact Switch	3647	4822 051 30181	180R 5% 0,062W
1802	4822 276 13775	Tact Switch	3651	4822 051 30221	220R 5% 0,062W
1803	4822 276 13775	Tact Switch	3652	4822 051 30221	220R 5% 0,062W
1804	4822 276 13775	Tact Switch	3653	4822 051 30271	270R 5% 0,062W
1805	4822 276 13775	Tact Switch	3654	4822 051 30121	120R 5% 0,062W
1840	4822 267 10731	Flex Connector 6P	3800	4822 116 83872	220R 5% 0,5W
			3801	4822 116 83872	220R 5% 0,5W
			3802	4822 116 83872	220R 5% 0,5W
			3803	4822 051 30561	560R 5% 0,062W
			3804	4822 051 30391	390R 5% 0,062W
			3805	4822 051 30271	270R 5% 0,062W
			3806	4822 051 30221	220R 5% 0,062W
			3807	4822 051 30151	150R 5% 0,062W
			3841	4822 117 12925	47k 1% 0,063W
			3842	4822 117 13632	100k 1% 0,62W
			3843	4822 051 30102	1k 5% 0,062W
			3844	4822 117 12902	8k2 1% 0,063W
			3845	4822 117 11817	1k2 1% 1/16W
			3848	4822 051 30471	470R 5% 0,062W
			3851	4822 051 30181	180R 5% 0,062W
			3860	4822 051 30101	100R 5% 0,062W
			3861	4822 051 30103	10k 5% 0,062W
			3862	4822 050 11002	1k 1% 0,4W
			4500	4822 051 30008	0R Jumper 0603
			4600	4822 051 30008	0R Jumper 0603
			4601	4822 051 30008	0R Jumper 0603
			4602	4822 051 30008	0R Jumper 0603

CAPACITORS

2606	5322 126 11583	10nF 10% 50V
2607	5322 126 11583	10nF 10% 50V
2608	4822 122 31765	100pF 2% 63V
2613	4822 122 31765	100pF 2% 63V
2615	4822 124 12233	47uF 20% 25V
2622	4822 126 14305	100nF 10% 16V
2623	4822 126 14305	100nF 10% 16V
2800	4822 122 31765	100pF 2% 63V
2840	4822 122 31765	100pF 2% 63V
2841	4822 124 22651	1uF 20% 50V
2842	4822 122 31765	100pF 2% 63V
2860	4822 124 81286	47uF 20% 16V
2861	4822 126 14238	2,2nF 50V
2862	3198 017 34730	47nF 16V

RESISTORS

3606	4822 051 30103	10k 5% 0,062W
3607	4822 051 30103	10k 5% 0,062W
3610	4822 051 30151	150R 5% 0,062W

ELECTRICAL PARTS LIST - FRONT CONTROL BOARD**RESISTORS**

4603	4822 051 30008	0R Jumper 0603
4604	4822 051 30008	0R Jumper 0603
4605	4822 051 30008	0R Jumper 0603
4607	4822 051 30008	0R Jumper 0603
4627	4822 051 30008	0R Jumper 0603
4628	4822 051 30008	0R Jumper 0603
4843	4822 051 30008	0R Jumper 0603
4845	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5600	3139 110 53010	METER VU P-47SI-C AMBER
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DIODES

6602	4822 130 30621	1N4148
6603	4822 130 10791	LTL-1CHGE
6604	4822 130 10791	LTL-1CHGE
6605	4822 130 10791	LTL-1CHGE
6606	4822 130 10791	LTL-1CHGE
6610	4822 130 10791	LTL-1CHGE
6611	4822 130 10791	LTL-1CHGE
6612	4822 130 82978	LTL-1CHPE
6613	4822 130 10791	LTL-1CHGE
6624	4822 130 11589	LTL-1CHAE
6802	4822 130 10791	LTL-1CHGE
6803	4822 130 10791	LTL-1CHGE
6804	4822 130 10791	LTL-1CHGE
6840	4822 130 30621	1N4148
6841	4822 130 30621	1N4148
6842	9322 172 75676	LED VS LTL-1CHKFK

TRANSISTORS & INTEGRATED CIRCUITS

7800	9322 155 22667	IR Receiver TSOP2236ZC1
7841	4822 130 60511	BC847B
7842	4822 130 60373	BC857B
7843	4822 130 60511	BC847B

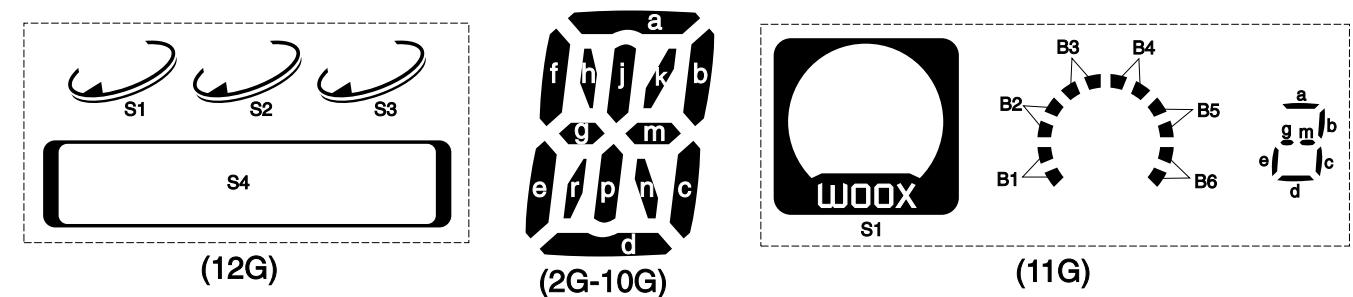
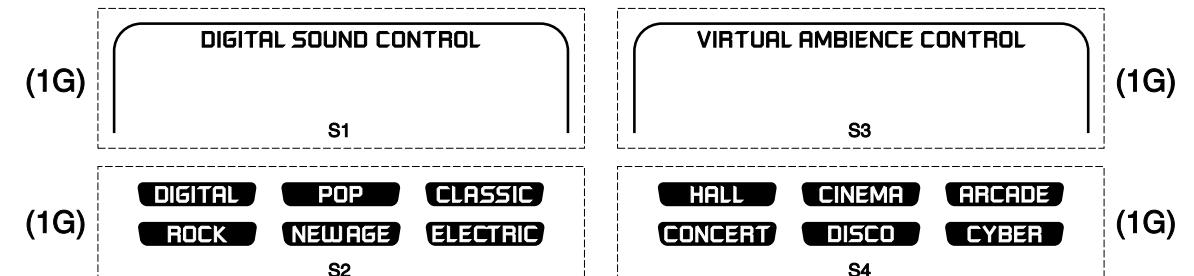
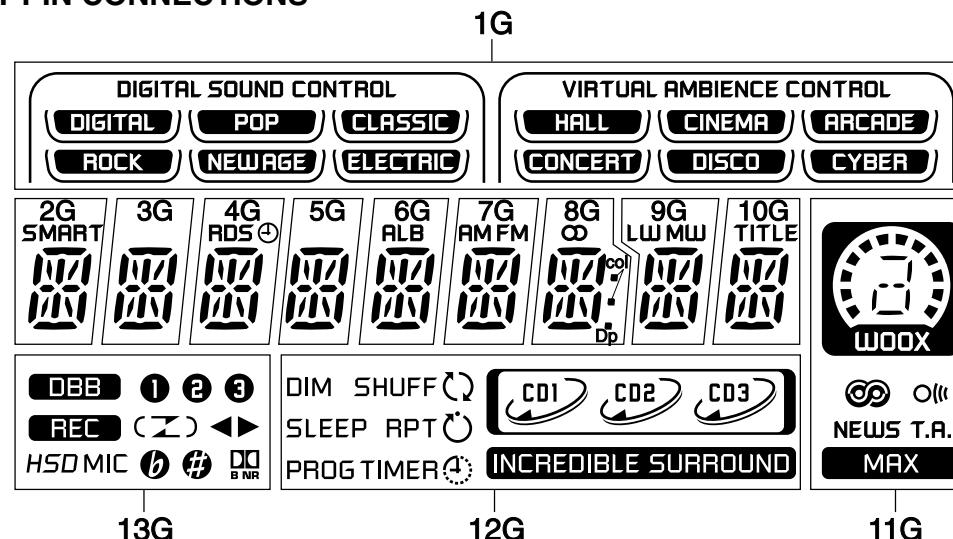
Note : Only the parts mentioned in this list are normal service spare parts.

FRONT DISPLAY BOARD

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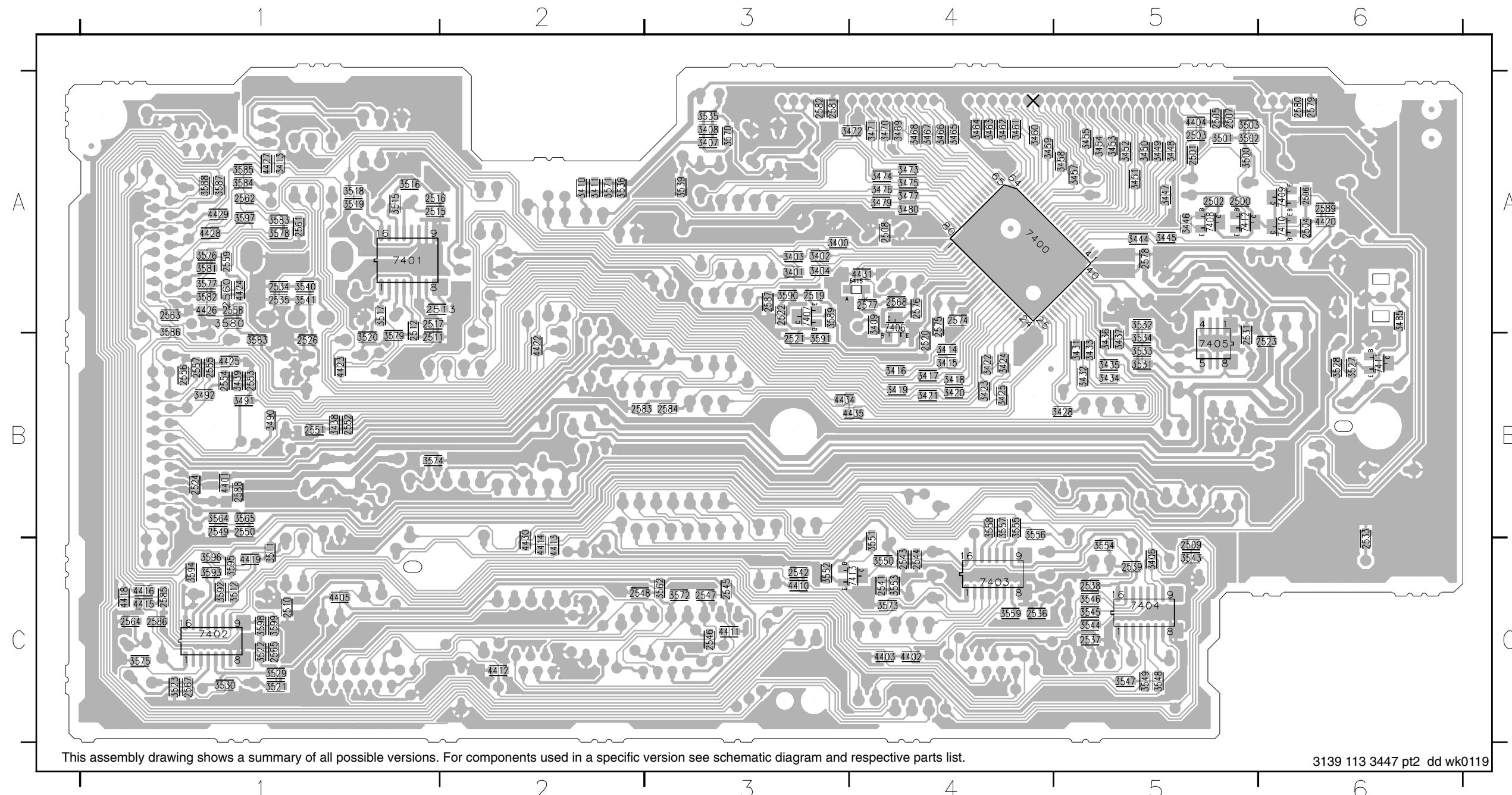
FTD DISPLAY PIN CONNECTIONS



	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G
P1	S1	a	a	a	a	a	a	a	a	a	S1	DIM	DBB
P2	S2	h	h	h	h	h	h	h	h	h	B1	SHUFF	①
P3	(CLASSIC)	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	j, p	B2	SLEEP	②
P4	(POP)	k	k	k	k	k	k	k	k	k	B3	RPT	③
P5	(DIGITAL)	b	b	b	b	b	b	b	b	b	B4	PROG	REC
P6	(ELECTRIC)	f	f	f	f	f	f	f	f	f	B5	TIMER	C
P7	(NEWAGE)	m	m	m	m	m	m	m	m	m	B6	CD1	Ι
P8	(ROCK)	g	g	g	g	g	g	g	g	g	a,g,m,d	S1	▷
P9	S3	c	c	c	c	c	c	c	c	c	b	CD2	◀
P10	S4	e	e	e	e	e	e	e	e	e	c	S2	▶
P11	(ARCADE)	r	r	r	r	r	r	r	r	r	e	CD3	HSD
P12	(CINEMA)	n	n	n	n	n	n	n	n	n	∞	S3	MIC
P13	(HALL)	d	d	d	d	d	d	d	d	d	Oll	S4	b
P14	(CYBER)	SMART	-	RDS	-	ALB	FM	CD	LW	TITLE	NEWS	INCREDIBLE SURROUND	#
P15	(DISCO)	-	-	-	-	-	FM	col	MW	-	T.R.	-	□ NR
P16	(CONCERT)	-	-	-	-	-	-	Dp	-	-	MAX	-	-

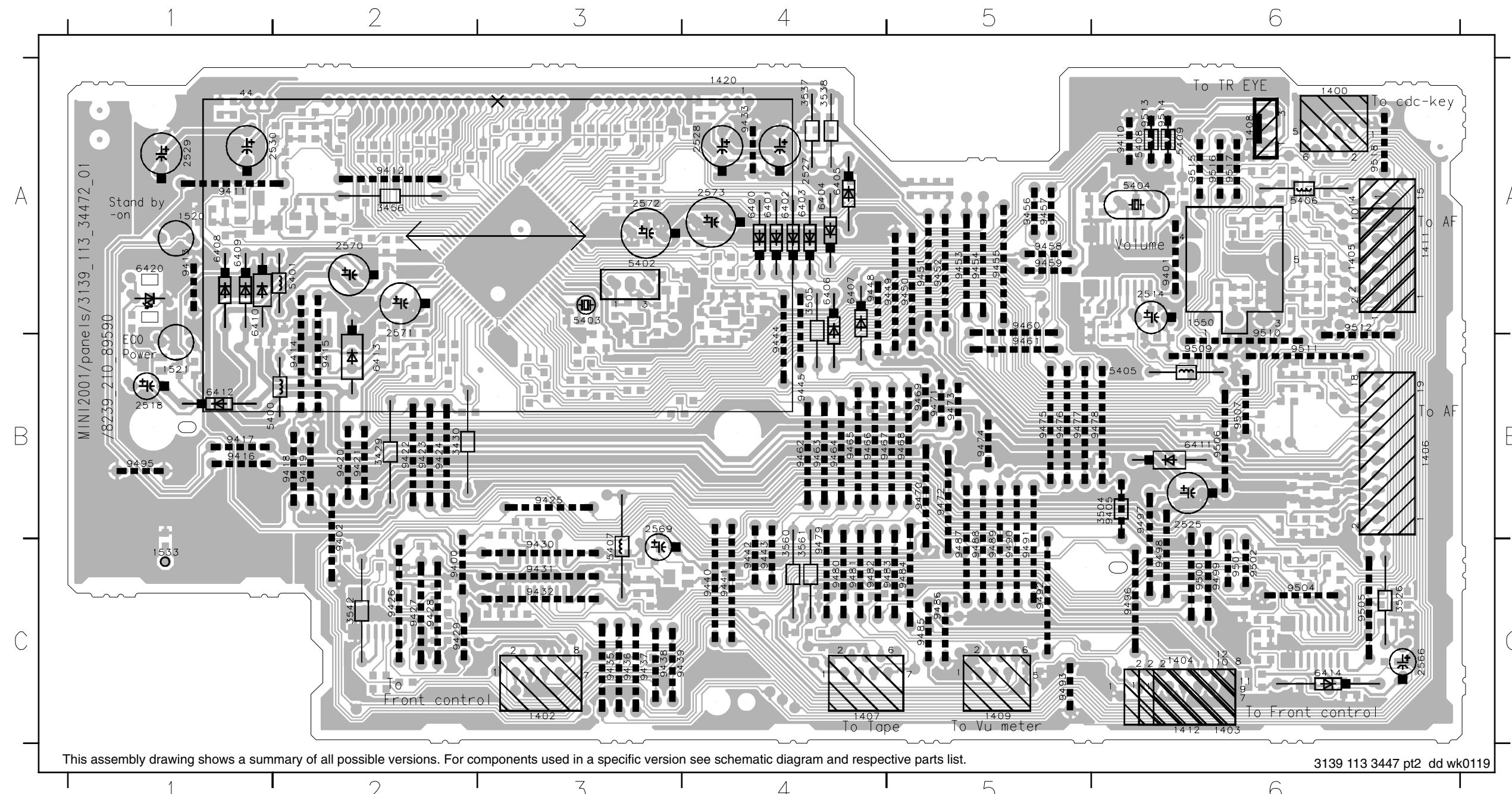
FRONT DISPLAY BOARD - CHIP LAYOUT

2500 A5	2512 A1	2531 B5	2545 C3	2557 B1	2575 A4	2587 A3	3410 A2	3423 B4	3439 B1	3455 A5	3468 A4	3485 A6	3517 A1	3532 A5	3547 C5	3559 C4	3577 A1	3589 A3	4402 C4	4419 C1	4434 B3	7409 A6
2501 A5	2513 A2	2533 C6	2546 C3	2558 A1	2576 A4	2588 B1	3411 A2	3424 B4	3444 A5	3457 A5	3469 A4	3490 B1	3518 A1	3533 B5	3548 C5	3562 C3	3578 A1	3590 A3	4403 C4	4420 A6	4435 B4	7410 A6
2502 A5	2515 A1	2534 A1	2547 C3	2559 A1	2577 A4	2589 A6	3413 A1	3425 B4	3445 A5	3458 A5	3470 A4	3491 B1	3519 A1	3534 B5	3549 C5	3563 B1	3579 B1	3591 B3	4404 A5	4422 B2	6415 A4	7411 B6
2503 A5	2516 A1	2535 A1	2548 C2	2560 A1	2578 A5	3400 A3	3414 B4	3428 B5	3446 A5	3459 A4	3471 A4	3492 B1	3520 B1	3535 A3	3550 C4	3564 B1	3580 A1	3592 C1	4405 C1	4423 B1	7400 A4	7412 A5
2504 A6	2517 A1	2536 C4	2549 B1	2561 A1	2579 A6	3401 A3	3415 B4	3431 B5	3447 A5	3460 A4	3472 A4	3500 A5	3521 C1	3536 A2	3551 C4	3565 B1	3581 A1	3593 C1	4410 C3	4424 A1	7401 A1	7413 C4
2505 A5	2519 A3	2537 C5	2550 B1	2562 A1	2580 A6	3402 A3	3416 B4	3432 B5	3448 A5	3461 A4	3473 A4	3501 A5	3522 C1	3539 A3	3552 C3	3570 A3	3582 A1	3594 C1	4411 C3	4425 B1	7402 C1	
2506 A6	2520 B4	2538 C5	2551 B1	2563 A1	2581 A3	3403 A3	3417 B4	3433 B5	3449 A5	3462 A4	3474 A4	3502 A5	3523 C1	3540 A1	3553 C4	3571 A2	3583 A1	3595 C1	4412 C2	4426 A1	7403 C4	
2507 A5	2521 B3	2539 C5	2552 B1	2564 C1	2582 A3	3404 A3	3418 B4	3434 B5	3450 A5	3463 A4	3475 A4	3503 A5	3527 B6	3541 A1	3554 C5	3572 C3	3584 A1	3596 C1	4413 C2	4427 A1	7404 C5	
2508 A4	2522 A3	2541 C4	2553 B1	2565 C1	2583 B2	3406 C5	3419 B4	3435 B5	3451 A5	3464 A4	3476 A4	3511 C1	3528 B6	3543 C5	3555 B4	3573 C4	3585 A1	3597 A1	4414 C2	4428 A1	7405 B5	
2509 C5	2523 B6	2542 C3	2554 B1	2567 C1	2584 B3	3407 A3	3420 B4	3436 B5	3452 A5	3465 A4	3477 A4	3512 C1	3529 C1	3544 C5	3556 B4	3574 B1	3586 A1	3598 C1	4415 C1	4429 A1	7406 A4	
2510 C1	2524 B1	2543 C4	2555 B1	2568 A4	2585 C1	3408 A3	3421 B4	3437 B5	3453 A5	3466 A4	3479 A4	3515 A1	3530 C1	3545 C5	3557 B4	3575 C1	3587 A1	3599 C1	4416 C1	4430 C2	7407 A3	
2511 B1	2526 B1	2544 C4	2556 B1	2574 A4	2586 C1	3409 A4	3422 B4	3438 B1	3454 A5	3467 A4	3480 A4	3516 A1	3531 B5	3546 C5	3558 B4	3576 A1	3588 A1	4401 B1	4418 C1	4431 A4	7408 A5	

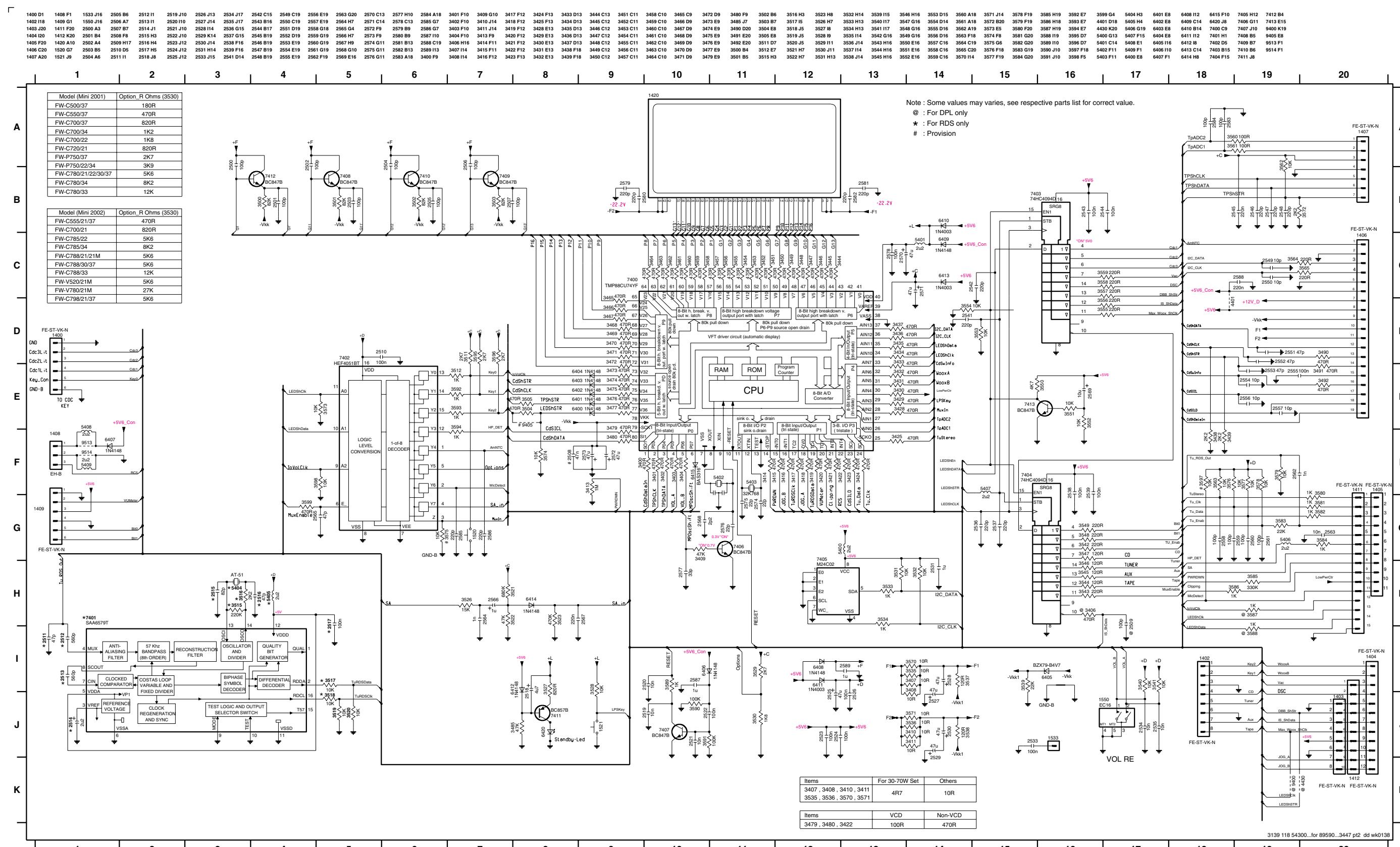


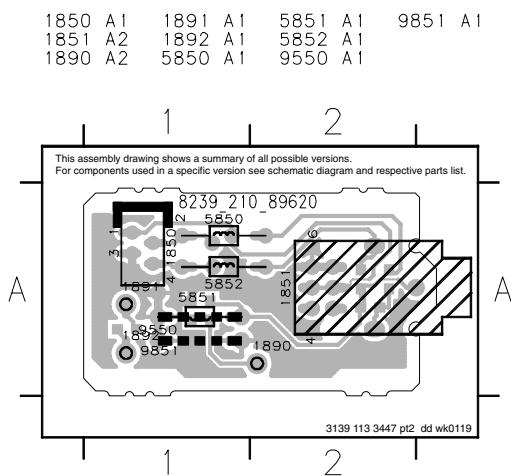
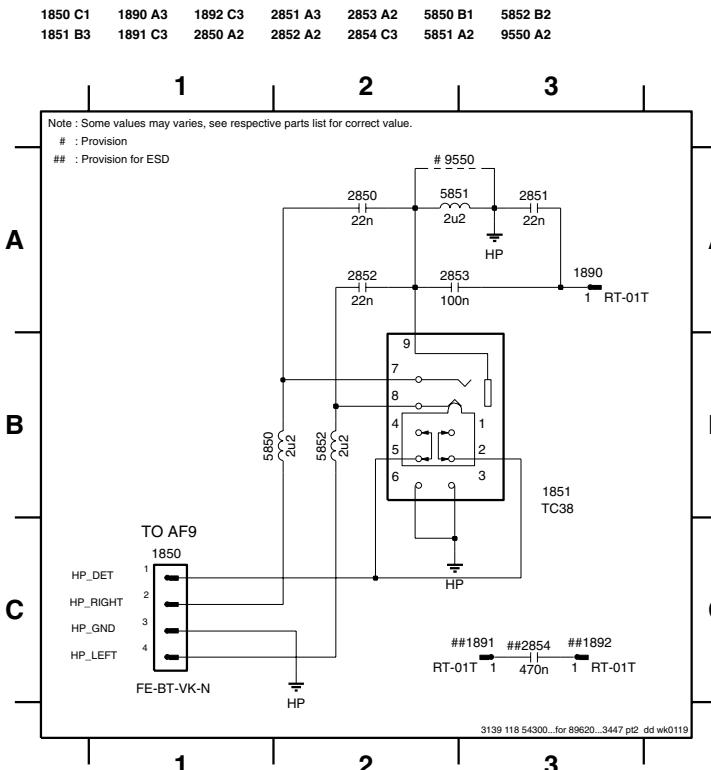
FRONT DISPLAY BOARD - COMPONENT LAYOUT

1400 A6	1409 C5	2514 A6	2569 B3	3504 B6	5400 B1	5408 A6	6406 A4	6414 C6	9412 A2	9420 B2	9428 C2	9437 C3	9445 B4	9455 A5	9463 B4	9471 B5	9479 C4	9487 C5	9496 C6	9505 C6	9514 A6
1402 C3	1411 A6	2518 B1	2570 A2	3505 A4	5401 A2	5409 A6	6407 A4	6420 A1	9413 A1	9421 B2	9429 C2	9438 C3	9448 A4	9456 A5	9464 B4	9472 B5	9480 C4	9488 C5	9497 B6	9506 B6	9515 A6
1403 C6	1412 C6	2525 B6	2571 A2	3526 C6	5402 A3	5409 A4	6408 A1	9400 C2	9414 B2	9422 B2	9430 C3	9439 C3	9449 A5	9457 A5	9465 B4	9473 B5	9481 C4	9489 C5	9498 C6	9507 B6	9516 A6
1404 C6	1420 A4	2527 A4	3537 A4	5403 A3	6401 A4	6409 A1	9401 A6	9415 B2	9423 B2	9431 C3	9440 C4	9450 A5	9458 A5	9466 B4	9474 B5	9482 C4	9490 C5	9499 C6	9509 B6	9517 A6	
1405 A6	1520 A1	2528 A4	3538 A4	5404 A6	6402 A4	6410 A1	9402 B2	9416 B1	9424 B2	9432 C3	9441 C4	9451 A5	9459 A5	9467 B4	9475 B5	9483 C5	9491 C5	9500 C6	9510 A6	9518 A6	
1406 B6	1521 B1	2529 A1	3429 B2	3542 C2	5405 B6	6403 A4	6411 B6	9405 B6	9417 B1	9425 B3	9433 A4	9442 C4	9452 A5	9460 A5	9468 B5	9476 B5	9484 C5	9492 C5	9501 C6	9511 B6	
1407 C4	1533 C1	2530 A1	3430 B2	3560 C4	5406 A6	6404 A4	6412 B1	9410 A6	9418 B2	9426 C2	9435 C3	9443 C4	9453 A5	9461 B5	9469 B5	9477 B5	9485 C5	9493 C5	9502 C6	9512 A6	
1408 A6	1550 A6	2566 C6	3456 A2	3561 C4	5407 C3	6405 A4	6413 B2	9411 A1	9419 B2	9427 C2	9436 C3	9444 B4	9454 A5	9462 B4	9470 B5	9478 B6	9486 C5	9495 B1	9504 C6	9513 A6	

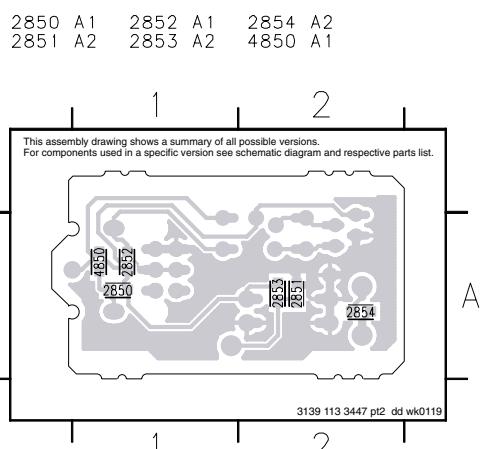


FRONT DISPLAY BOARD - CIRCUIT DIAGRAM



HEADPHONE BOARD - COMPONENT LAYOUT

HEADPHONE BOARD - CIRCUIT DIAGRAM

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD
MISCELLANEOUS

1400	4822 265 11207	Flex Connector 6P
1402	4822 265 11535	Flex Connector 8P
1405	2422 025 14541	Flex Connector 11P
1406	4822 265 11545	Flex Connector 19P
1407	4822 267 10956	Flex Connector 7P
1409	4822 265 11207	Flex Connector 6P
1412	4822 265 11208	Flex Connector 10P
1420	3139 110 52540	FTD Display
1520	4822 276 13775	Tact Switch
1521	4822 276 13775	Tact Switch

HEADPHONE BOARD - CHIP LAYOUT

ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

2505	4822 122 31765	100pF 2% 63V	2567	4822 126 13879	220nF +80/-20% 16V
2506	4822 122 31765	100pF 2% 63V	2568	4822 126 14223	2,2pF 50V
2507	4822 122 31765	100pF 2% 63V	2569	4822 124 11947	10uF 20% 16V
2508	3198 024 44730	47nF 50V	2570	4822 124 12052	220uF 20% 6,3V
2510	4822 126 14305	100nF 10% 16V	2571	4822 124 12233	47uF 20% 25V
2518	4822 124 22726	4,7uF 35V	2572	3198 028 44790	47uF 20% 35V
2519	5322 126 11583	10nF 10% 50V	2573	3198 028 44790	47uF 20% 35V
2520	5322 126 11583	10nF 10% 50V	2574	4822 122 33761	22pF 5% 50V
2521	5322 126 11583	10nF 10% 50V	2575	4822 122 33761	22pF 5% 50V
2522	4822 126 14305	100nF 10% 16V	2576	4822 122 33761	22pF 5% 50V
2523	4822 126 14305	100nF 10% 16V	2577	2222 867 15339	33pF 5% 50V
2524	4822 126 14305	100nF 10% 16V	2578	4822 126 14305	100nF 10% 16V
2525	4822 124 12233	47uF 20% 25V	2579	4822 126 13883	220pF 5% 50V
2526	4822 126 14305	100nF 10% 16V	2580	4822 126 13883	220pF 5% 50V
2527	4822 124 22726	4,7uF 35V	2581	4822 126 13883	220pF 5% 50V
2528	4822 124 22726	4,7uF 35V	2582	4822 126 13883	220pF 5% 50V
2529	4822 124 22726	4,7uF 35V	2583	4822 122 31765	100pF 2% 63V
2530	4822 124 22726	4,7uF 35V	2584	4822 122 31765	100pF 2% 63V
2531	3198 017 41050	1uF 10V	2585	4822 126 13883	220pF 5% 50V
2533	4822 126 14305	100nF 10% 16V	2586	4822 126 13883	220pF 5% 50V
2534	5322 126 11583	10nF 10% 50V	2587	3198 017 41050	1uF 10V
2535	5322 126 11583	10nF 10% 50V	2588	4822 126 13879	220nF +80/-20% 16V
2536	3198 016 36810	680pF 25V	2589	3198 017 41050	1uF 10V
2537	4822 126 13883	220pF 5% 50V	2590	4822 126 14494	22nF 10% 25V
2538	4822 126 14305	100nF 10% 16V	2591	4822 126 14494	22nF 10% 25V
2539	4822 126 14305	100nF 10% 16V	2592	4822 126 14494	22nF 10% 25V
2541	4822 126 13883	220pF 5% 50V	2593	4822 126 14305	100nF 10% 16V
2542	4822 126 13883	220pF 5% 50V			
2543	4822 126 14305	100nF 10% 16V			
2544	4822 126 14305	100nF 10% 16V			
2545	4822 126 13879	220nF +80/-20% 16V			
2546	4822 126 13883	220pF 5% 50V			
2547	4822 126 13883	220pF 5% 50V			
2548	4822 126 13883	220pF 5% 50V			
2549	4822 122 33741	10pF 10% 50V			
2550	4822 122 33741	10pF 10% 50V			
2551	4822 122 33777	47pF 5% 63V			
2552	4822 122 33777	47pF 5% 63V			
2553	4822 122 33777	47pF 5% 63V			
2554	4822 122 33741	10pF 10% 50V			
2555	4822 126 14305	100nF 10% 16V			
2556	4822 122 33741	10pF 10% 50V			
2557	4822 122 33741	10pF 10% 50V			
2558	4822 122 31765	100pF 2% 63V			
2559	4822 122 31765	100pF 2% 63V			
2560	4822 122 31765	100pF 2% 63V			
2561	4822 122 31765	100pF 2% 63V			
2562	3198 016 31020	1nF 25V			
2563	5322 126 11583	10nF 10% 50V			
2564	5322 126 11578	1nF 10% 50V			
2565	4822 122 33777	47pF 5% 63V			
2566	4822 124 22651	1uF 20% 50V			

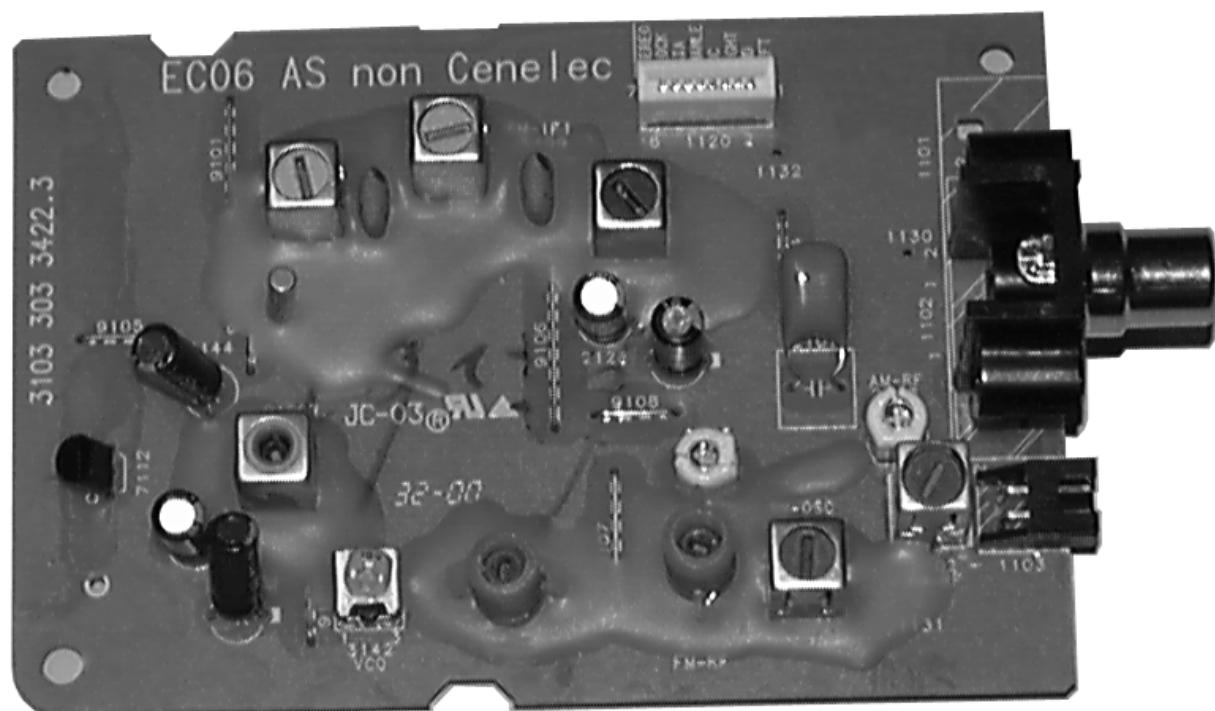
ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD**RESISTORS**

3428	4822 051 30471	470R 5% 0,062W	3500	4822 117 12864	82k 5% 0,6W
3429	4822 116 83883	470R 5% 0,5W	3501	4822 117 12864	82k 5% 0,6W
3430	4822 116 83883	470R 5% 0,5W	3502	4822 117 12864	82k 5% 0,6W
3431	4822 051 30471	470R 5% 0,062W	3503	4822 117 12864	82k 5% 0,6W
3432	4822 051 30471	470R 5% 0,062W	3504	4822 116 83883	470R 5% 0,5W
3433	4822 051 30471	470R 5% 0,062W	3505	4822 116 83883	470R 5% 0,5W
3434	4822 051 30102	1k 5% 0,062W	3511	4822 051 30272	2k7 5% 0,062W
3435	4822 051 30471	470R 5% 0,062W	3512	4822 051 30102	1k 5% 0,062W
3436	4822 051 30471	470R 5% 0,062W	3519	4822 051 30103	10k 5% 0,062W
3437	4822 051 30471	470R 5% 0,062W	3520	4822 051 30103	10k 5% 0,062W
3438	4822 051 30222	2k2 5% 0,062W	3521	4822 051 30684	680k 5% 0,062W
3439	4822 051 30222	2k2 5% 0,062W	3522	4822 117 12925	47k 1% 0,063W
3440	4822 051 30471	470R 5% 0,062W	3523	4822 051 30474	470k 5% 0,062W
3441	4822 051 30471	470R 5% 0,062W	3524	4822 051 30109	10R 5% 0,062W
3442	4822 051 30471	470R 5% 0,062W	3526	4822 116 52244	15k 5% 0,5W
3443	4822 051 30471	470R 5% 0,062W	3527	4822 117 12968	820R 5% 0,62W
3444	4822 051 30471	470R 5% 0,062W	3528	4822 051 30103	10k 5% 0,062W
3445	4822 051 30471	470R 5% 0,062W	3529	4822 051 30272	2k7 5% 0,062W
3446	4822 051 30471	470R 5% 0,062W	3530	4822 051 30471	470R 5% 0,062W
3447	4822 051 30471	470R 5% 0,062W	3531	4822 051 30103	10k 5% 0,062W
3448	4822 051 30471	470R 5% 0,062W	3532	4822 051 30103	10k 5% 0,062W
3449	4822 051 30471	470R 5% 0,062W	3533	4822 051 30102	1k 5% 0,062W
3450	4822 051 30471	470R 5% 0,062W	3534	4822 051 30102	1k 5% 0,062W
3451	4822 051 30471	470R 5% 0,062W	3535	4822 051 20109	10R 5% 0,1W
3452	4822 051 30471	470R 5% 0,062W	3536	4822 051 20109	10R 5% 0,1W
3453	4822 051 30471	470R 5% 0,062W	3537	4822 116 52206	120R 5% 0,5W
3454	4822 051 30471	470R 5% 0,062W	3538	4822 116 52206	120R 5% 0,5W
3455	4822 051 30471	470R 5% 0,062W	3539	4822 051 30223	22k 5% 0,062W
3456	4822 116 83883	470R 5% 0,5W	3540	4822 051 30103	10k 5% 0,062W
3457	4822 051 30471	470R 5% 0,062W	3541	4822 051 30103	10k 5% 0,062W
3458	4822 051 30471	470R 5% 0,062W	3542	4822 116 83872	220R 5% 0,5W
3459	4822 051 30471	470R 5% 0,062W	3543	4822 051 30221	220R 5% 0,062W
3460	4822 051 30471	470R 5% 0,062W	3544	4822 051 30121	120R 5% 0,062W
3461	4822 051 30471	470R 5% 0,062W	3545	4822 051 30121	120R 5% 0,062W
3462	4822 051 30471	470R 5% 0,062W	3546	4822 051 30121	120R 5% 0,062W
3463	4822 051 30471	470R 5% 0,062W	3547	4822 051 30121	120R 5% 0,062W
3464	4822 051 30471	470R 5% 0,062W	3548	4822 051 30221	220R 5% 0,062W
3465	4822 051 30471	470R 5% 0,062W	3549	4822 051 30221	220R 5% 0,062W
3466	4822 051 30471	470R 5% 0,062W	3550	4822 051 30472	4k7 5% 0,062W
3467	4822 051 30471	470R 5% 0,062W	3551	4822 051 30103	10k 5% 0,062W
3468	4822 051 30471	470R 5% 0,062W	3552	4822 051 30103	10k 5% 0,062W
3469	4822 051 30471	470R 5% 0,062W	3553	4822 051 30103	10k 5% 0,062W
3470	4822 051 30471	470R 5% 0,062W	3554	4822 051 30103	10k 5% 0,062W
3471	4822 051 30471	470R 5% 0,062W	3555	4822 051 30221	220R 5% 0,062W
3472	4822 051 30471	470R 5% 0,062W	3556	4822 051 30121	120R 5% 0,062W
3473	4822 051 30471	470R 5% 0,062W	3557	4822 051 30271	270R 5% 0,062W
3474	4822 051 30221	220R 5% 0,062W	3558	4822 051 30221	220R 5% 0,062W
3475	4822 051 30221	220R 5% 0,062W	3559	4822 051 30221	220R 5% 0,062W
3476	4822 051 30471	470R 5% 0,062W	3560	4822 116 83883	470R 5% 0,5W
3477	4822 051 30471	470R 5% 0,062W	3561	4822 116 83883	470R 5% 0,5W
3478	4822 051 30471	470R 5% 0,062W	3562	4822 051 30103	10k 5% 0,062W
3479	4822 051 30471	470R 5% 0,062W	3563	4822 051 30103	10k 5% 0,062W

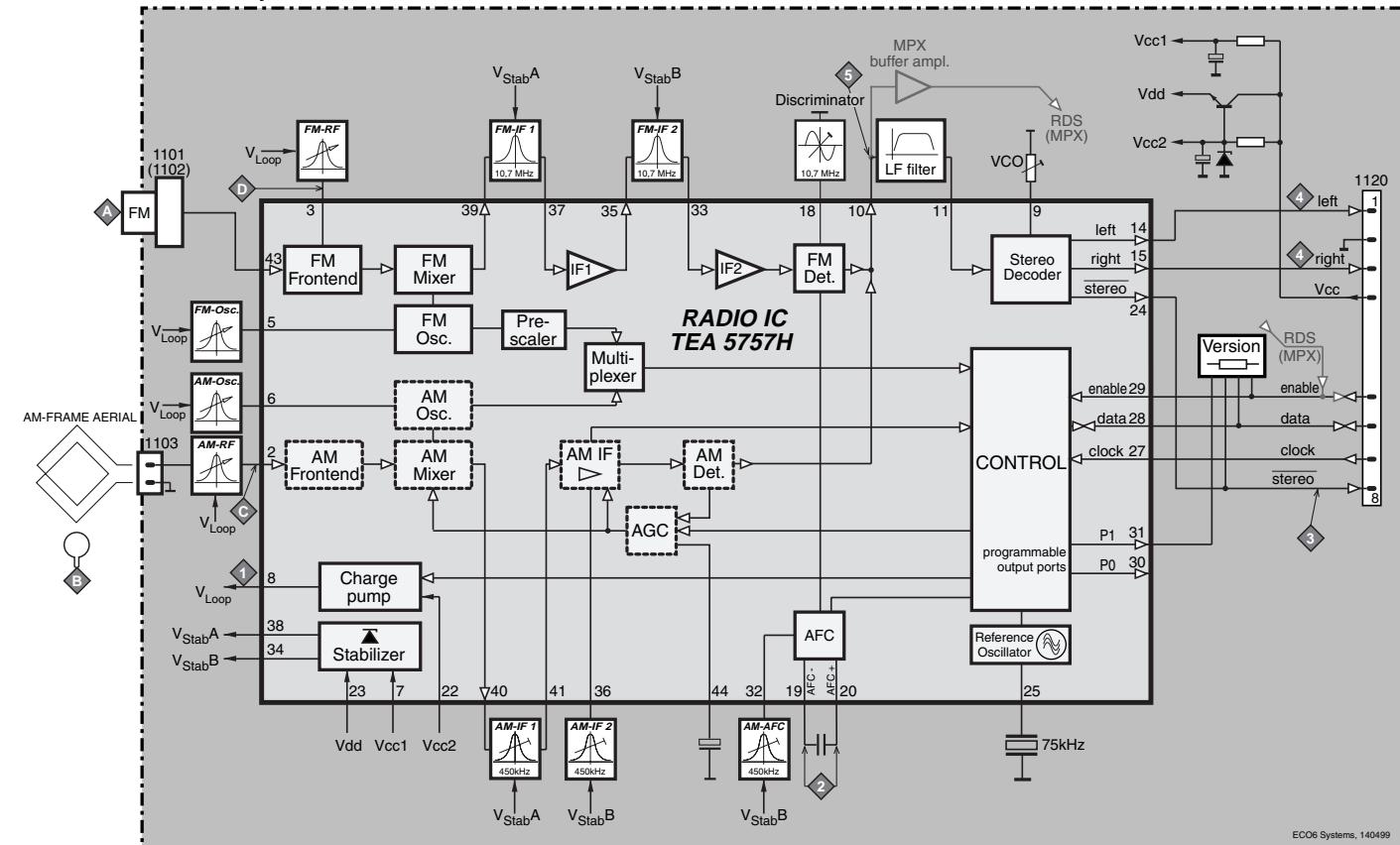
ELECTRICAL PARTS LIST - FRONT DISPLAY BOARD

3564	4822 051 30221	220R 5% 0,062W	4850	4822 051 30008	0R Jumper 0603
3565	4822 051 30221	220R 5% 0,062W	5400	4822 157 62552	Coil 2,2uH 5%
3570	4822 051 20109	10R 5% 0,1W	5401	4822 157 62552	Coil 2,2uH 5%
3571	4822 051 20109	10R 5% 0,1W	5402	5322 242 73686	RES CER 12MHz
3572	4822 051 30222	2k2 5% 0,062W	5403	2422 543 01069	RES XTL 32,768kHz
3573	4822 051 30103	10k 5% 0,062W	5405	4822 157 62552	Coil 2,2uH 5%
3574	4822 051 30103	10k 5% 0,062W	5406	4822 157 62552	Coil 2,2uH 5%
3576	4822 051 30103	10k 5% 0,062W	5407	4822 157 62552	Coil 2,2uH 5%
3577	4822 051 30103	10k 5% 0,062W	5408	4822 157 62552	Coil 2,2uH 5%
3578	4822 051 30103	10k 5% 0,062W	5409	4822 157 62552	Coil 2,2uH 5%
3579	4822 051 30103	10k 5% 0,062W	5850	4822 157 62552	Coil 2,2uH 5%
3580	4822 051 30102	1k 5% 0,062W	5851	4822 157 62552	Coil 2,2uH 5%
3581	4822 051 30102	1k 5% 0,062W	5852	4822 157 62552	Coil 2,2uH 5%
3584	4822 051 30102	1k 5% 0,062W	6400	4822 130 30621	1N4148
3585	4822 051 30334	330k 5% 0,062W	6401	4822 130 30621	1N4148
3586	4822 051 30102	1k 5% 0,062W	6402	4822 130 30621	1N4148
3589	4822 051 30102	1k 5% 0,062W	6403	4822 130 30621	1N4148
3590	4822 117 13632	100k 1% 0,62W	6404	4822 130 30621	1N4148
3591	4822 117 13632	100k 1% 0,62W	6405	4822 130 34174	BZX79-B4V7
3592	4822 051 30102	1k 5% 0,062W	6406	4822 130 30621	1N4148
3593	4822 051 30102	1k 5% 0,062W	6407	4822 130 30621	1N4148
3594	4822 051 30102	1k 5% 0,062W			

BLOCK DIAGRAM



TUNER BOARD
ECO 6 Systems

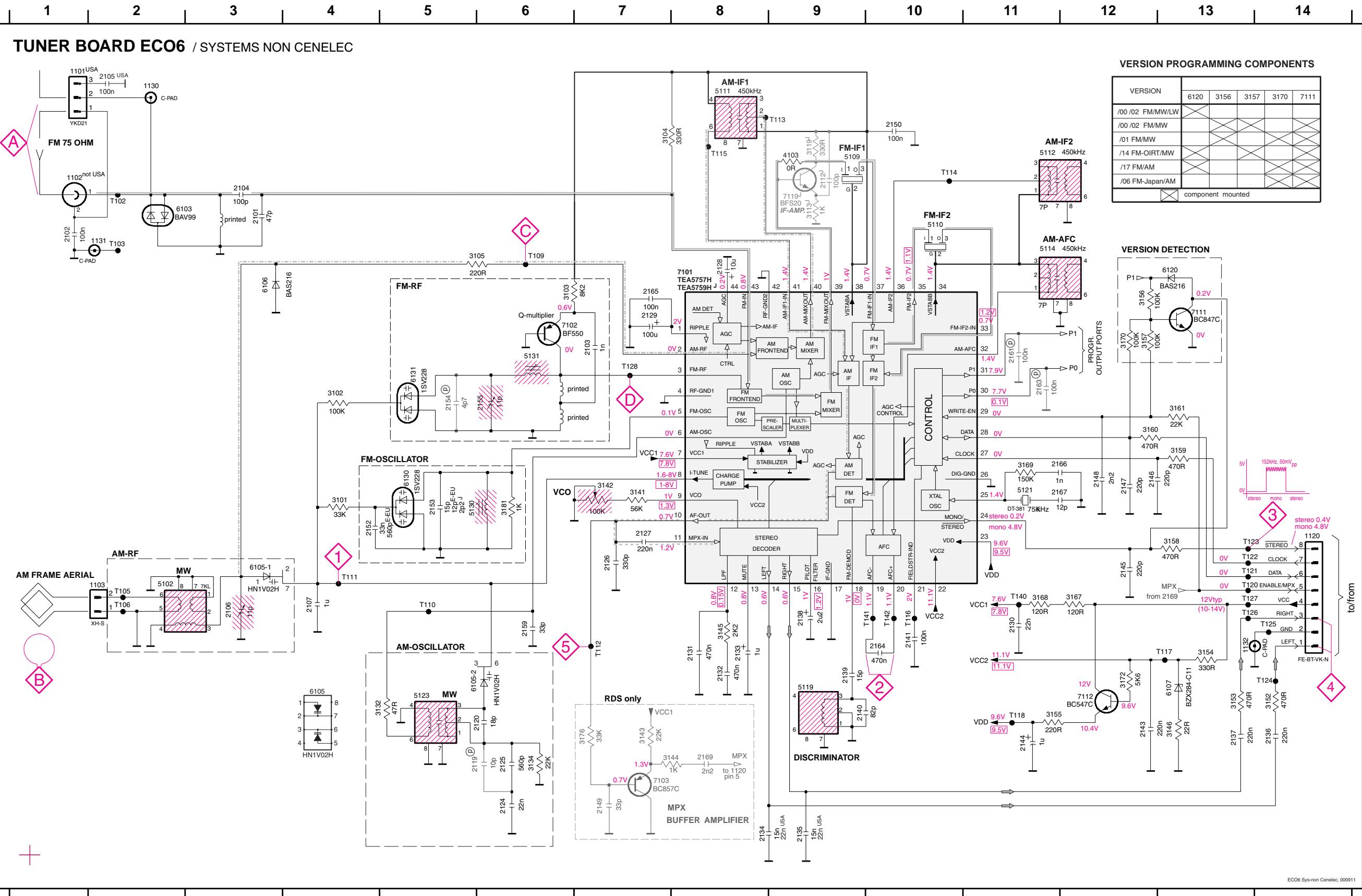


ECO6 Tuner Board

version: **SYSTEMS non-CENELEC**

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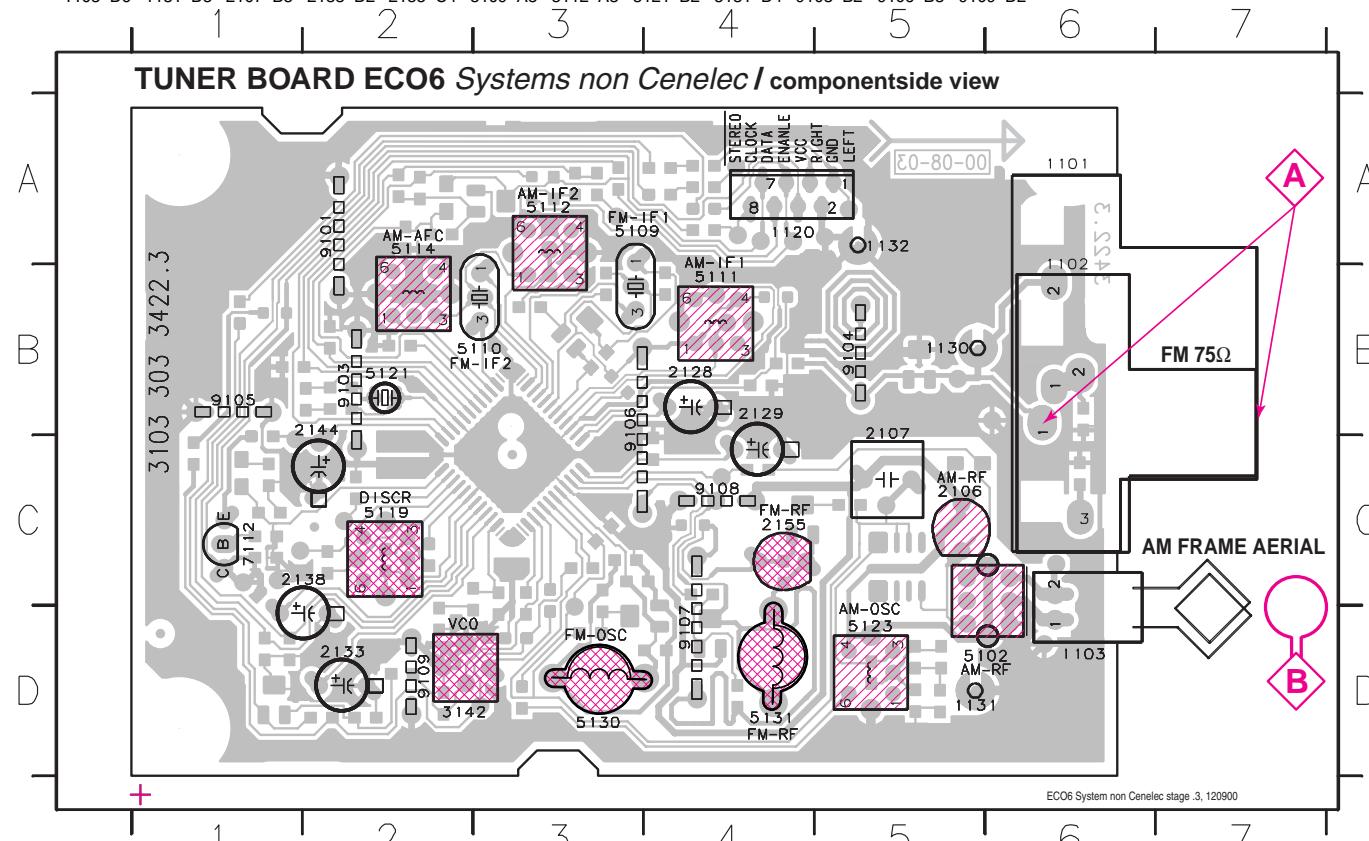
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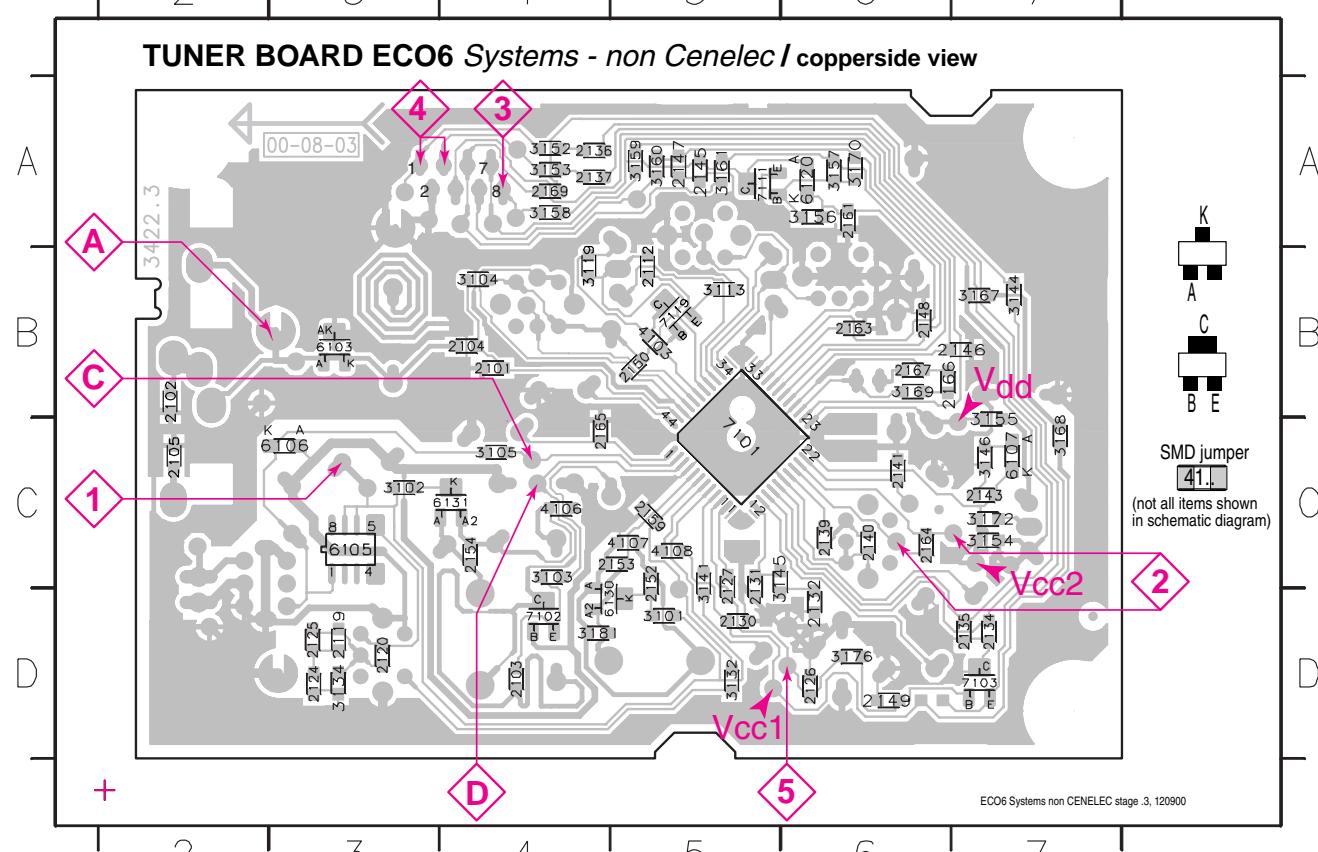
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1107 G13
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2103 C7
2105 A2
2106 F3
2107 F4
2119 H6
2120 G6
2124 H6
2125 H6
2127 E7
2128 E8
2129 C7
2130 F11
2131 G8
2132 G8
2133 G8
2134 H8
2135 H9
2136 G14
2137 G13
2138 F9
2139 G9
2140 G9
2141 F10
2143 G12
2145 F12
2146 E12
2147 E12
2148 E12
2149 H7
2150 A10
2152 E4
2153 E5
2154 D5
2155 D5
2159 F6
2161 C11
2163 D11
2164 F10
2165 C7
2166 E11
2169 H8
3101 E4
3102 E4
3103 C6
3104 A7
3105 B6
3132 G5
3134 H6
3141 E7
3142 E7
3144 G7
3145 F8
3146 G13
3152 G14
3153 G13
3154 G13
3155 G11
3156 C12
3157 C12
3158 E13
3159 D13
3160 D12
3161 D13
3167 F12
3168 F11
3169 E11
3170 C12
3172 G12
3176 G7
3181 E6
5102 F2
5109 B9
5110 B10
5111 A6
5112 A11
5114 G9
5121 E11
5123 G5
5130 E5
5131 C6
6103 B2
6105-1 F3
6105-2 G5
6106 C3
6107 C13
6120 C13
6130 E5
6131 D5
7101 C8
7102 C6
7103 G7
7112 G13
7113 F13
7114 D7
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1101	A6	1120	A4	1132	A5	2128	C4	2138	C2	3142	D2	5110	B3	5114	A2	5123	D5	7112	C1	9104	B5	9107	D4
1102	B6	1130	B5	2106	C5	2129	B4	2144	B2	5102	D6	5111	B4	5119	C2	5130	D3	9101	A2	9105	B1	9108	C4
1103	D6	1131	D5	2107	B5	2133	D2	2155	C4	5109	A3	5112	A3	5121	B2	5131	D4	9103	B2	9106	B3	9109	D2



2101	B4	2119	D3	2130	D5	2137	A4	2146	B7	2153	C5	2165	C4	3103	C4	3134	D3	3152	A4	3158	A4	3169	B6	4106	C4	6107	C7	7103	D7
2102	B1	2120	D3	2131	C5	2139	C6	2147	A5	2154	C4	2166	B6	3104	B4	3141	C5	3153	A4	3159	A5	3170	A6	4107	C5	6120	A6	7111	A5
2103	D4	2124	D3	2132	D6	2140	C6	2148	B6	2159	C5	2167	B6	3105	C4	3143	D6	3154	C7	3160	A5	3172	C7	4108	C5	6130	D4	7119	B5
2104	B4	2125	D3	2134	D7	2141	C6	2149	D6	2161	A6	2169	A4	3113	B5	3144	B7	3155	C7	3161	A5	3176	D6	6103	B3	6131	C4		
2105	C1	2126	D6	2135	D7	2143	C7	2150	B5	2163	B6	3101	D5	3119	B5	3145	C5	3156	A6	3167	B7	3181	D4	6105	C3	7101	C5		
2112	B5	2127	C5	2136	A4	2145	A5	2152	C5	2164	C6	3102	C3	3132	D5	3146	C7	3157	A6	3168	C7	4103	B5	6106	C3	7102	D4		



These assembly drawings show a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

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TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter	
VARICAP ALIGNMENT							
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130		8V ±0.2V	
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)	
MW FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V	
			530kHz	check		1.1V ±0.4V	
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V	
			531kHz	check		1.1V ±0.4V	
LW 153 - 279kHz			279kHz	5122		8V ±0.2V	
			153kHz	check		1.1V ±0.4V	
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V	
			531kHz	check		1.1V ±0.4V	
FM IF							
FM	10.7MHz, 45mV continuous wave	D	IC 7101 mod=1kHz Δf=±22.5kHz	21 shortcircuit to block AFC 2141	5119	2	0 ± 3 mV DC
FM RF							
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A	108MHz	2155	4	MAX	
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131			
VCO							
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz ¹⁾	
AM IF							
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C	IC 7101 36 220R 100nF	5111	5		
		Δf=±10kHz V _{RF} = 0.5mV (as low as possible)	IC 7101 40 220R 100nF	5112			
AM AFC MW		C		5114	2	0 ± 2 mV DC	
		continuous wave V _{RF} = 2mV					
AM RF ³⁾							
MW ⁴⁾ FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B	1494kHz	2106			
	558kHz		558kHz	5102			
LW	198kHz		198kHz	5103			
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V _{RF} as low as possible	1500kHz	2106			
	560kHz		560kHz	5102			

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

1) If sensitivity of frequency counter is too low adjust to max. channel separation
(input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

3) For AM BE adjustments the original frame antenna has to be used!

2) BC network serves for damping the IF-filter while adjusting the other one.

4) MW has to be aligned before LW.

Repeat

Electrical Partslist ECO6 SYSTEMS NON-CENELEC

MISCELLANEOUS						RESISTORS					
1101	2422 015 19376	SOCKET 2P CLICKFIT		USA only		3143©	4822 051 20223	22kΩ	5%	0,1W	RDS only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω		not USA		3144©	4822 051 10102	1kΩ	2%	0,25W	RDS only
1103	4822 265 31184	JST CONNECTOR 2 POLE				3145©	4822 117 11449	2,2kΩ	1%	0,1W	
1120	4822 265 11515	FFC SOCKET, 8P				3146©	4822 051 20229	22Ω	5%	0,1W	
CAPACITORS						3152©	4822 051 20471	470Ω	5%	0,1W	
2101©	4822 126 13692	47pF	1%	63V		3153©	4822 051 20471	470Ω	5%	0,1W	
2102©	4822 126 13838	100nF	10%	50V	not USA	3154©	4822 117 13577	330Ω	1%	0,1W	
2103©	5322 122 31647	1nF	10%	63V		3155©	4822 117 11503	220Ω	5%	0,1W	
2104©	5322 122 32531	100pF	5%	50V		3156©	4822 117 10837	100kΩ	1%	0,1W	
2105©	4822 126 13838	100nF	10%	50V	USA only	3157©	4822 117 10837	100kΩ	1%	0,1W	
2106	2020 800 00191	3-11pF TRIMCAP.,N450				3158©	4822 051 20471	470Ω	5%	0,1W	
2107	4822 121 51319	1μF	20%	50V		3159©	4822 051 20471	470Ω	5%	0,1W	
2120©	4822 126 13689	18pF	1%	63V		3160©	4822 051 20471	470Ω	5%	0,1W	
2124©	5322 122 32654	22nF	10%	63V		3161©	4822 051 20223	22kΩ	5%	0,1W	
2125©	2020 552 96199	560pF	1%	50V		3167©	4822 051 20121	120Ω	5%	0,1W	
2126©	5322 122 31863	330pF	5%	50V		3168©	4822 051 20121	120Ω	5%	0,1W	
2127©	4822 126 14076	220nF	20%	25V		3169©	4822 051 20154	150kΩ	5%	0,1W	
2128	4822 124 40248	10μF	20%	63V		3170©	4822 117 10837	100kΩ	1%	0,1W	
2129	4822 124 41584	100μF	20%	10V		3172©	4822 051 20562	5,6kΩ	5%	0,1W	
2130©	5322 122 32654	22nF	10%	63V		3176©	4822 051 20333	33kΩ	5%	0,1W	RDS only
2131©	4822 126 13482	470nF	20%	16V		3181©	4822 051 10102	1kΩ	2%	0,25W	
2132©	4822 126 13482	470nF	20%	16V		4103©	4822 051 20008	CHIP JUMPER 0805			
2133	4822 124 21913	1μF	20%	63V		4106©	4822 051 20008	CHIP JUMPER 0805			
2134©	4822 126 13188	15nF	5%	63V	not USA	4107©	4822 051 20008	CHIP JUMPER 0805			
2134©	5322 122 32654	22nF	10%	63V	USA only	4108©	4822 051 20008	CHIP JUMPER 0805			
2135©	4822 126 13188	15nF	5%	63V	not USA	COILS					
2135©	5322 122 32654	22nF	10%	63V	USA only	5102	4822 157 71634	RF-COIL MW			
2136©	4822 126 14076	220nF	20%	25V		5109	4822 242 70665	FM-IF FILTER 10,7MHz			
2137©	4822 126 14076	220nF	20%	25V		5110	4822 242 70665	FM-IF FILTER 10,7MHz			
2138	4822 124 22652	2,2μF	20%	50V		5111	2422 549 44023	AM-IF FILTER 450kHz			
2139©	4822 126 14236	15pF	5%	50V		5112	4822 157 70302	AM-IF FILTER 450kHz			
2140©	4822 126 13695	82pF	1%	63V		5114	4822 157 70302	AM-IF FILTER 450kHz			
2141©	4822 126 13838	100nF	10%	50V		5119	4822 157 11443	DISCRIMINATOR COIL			
2143©	4822 126 14076	220nF	20%	25V		5121	4822 242 10261	QUARTZ 75kHz			
2144	4822 124 21913	1μF	20%	63V		5123	2422 549 44108	RF-COIL, AM-OSCILLATOR			
2145©	4822 122 33575	220pF	5%	50V		5130	4822 157 11843	RF COIL 1,5 TURNS			
2146©	4822 122 33575	220pF	5%	50V		5131	4822 157 11843	RF COIL 1,5 TURNS			
2147©	4822 122 33575	220pF	5%	50V		DIODES					
2148©	4822 122 33127	2,2nF	10%	63V		6103©	5322 130 34337	BAV99			
2149©	5322 122 32659	33pF	5%	50V	RDS only	6105©	4822 130 83075	HN1V02H			
2150©	4822 126 13838	100nF	10%	50V		6106©	4822 130 83757	BAS216			
2152©	4822 126 12105	33nF	5%	63V	not for East Europe	6107©	9340 386 90115	BZX284-C11			
2152©	5322 116 80853	560pF	5%	63V	for East Europe only	6120©	4822 130 83757	BAS216			
2153©	4822 126 13486	15pF	2%	63V	not for East Europe	6130©	4822 130 82833	1SV228			
2153©	4822 122 33926	12pF	2%	50V	for East Europe only	6131©	4822 130 82833	1SV228			
2155	2020 800 00191	3-11pF TRIMCAP.,N450				TRANSISTORS					
2159©	5322 122 32659	33pF	5%	50V		7102	4822 130 42131	BF550			
2164©	4822 126 13482	470nF	20%	16V		7103©	5322 130 42756	BC857C			RDS only
2165©	4822 126 13838	100nF	10%	50V		7111©	5322 130 42755	BC847C			
2166©	5322 122 31647	1nF	10%	63V		7112	4822 130 44503	BC547C			
2167©	4822 122 33926	12pF	5%	50V		INTEGRATED CIRCUITS					
2169©	4822 122 33127	2,2nF	10%	63V	RDS only	7101©	9351 740 80557	TEA5757H/V1, RADIO IC			
RESISTORS											
3101©	4822 051 20333	33kΩ	5%	0,1W							
3102©	4822 117 10837	100kΩ	1%	0,1W							
3103©	4822 051 20822	8,2kΩ	5%	0,1W							
3104©	4822 117 13577	330Ω	1%	0,1W							
3105©	4822 117 11503	220Ω	5%	0,1W							
3132©	4822 051 20479	47Ω	5%	0,1W							
3134©	4822 051 20223	22kΩ	5%	0,1W							
3141©	4822 117 11148	56kΩ	1%	0,1W							
3142	4822 100 12159	TRIMPOT	100kΩ								

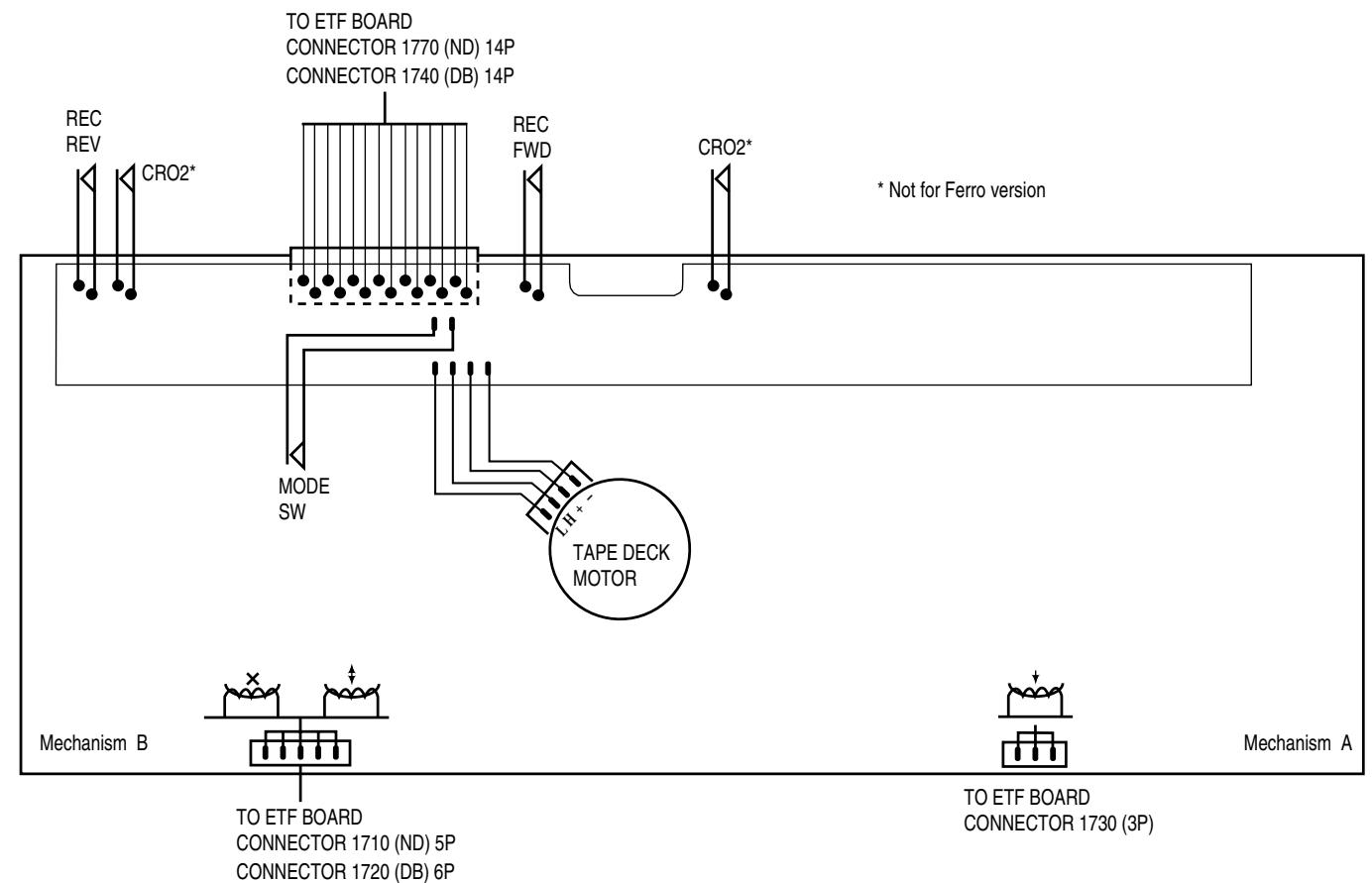
ETF7 TAPE MODULE

(Non-Dolby Version)

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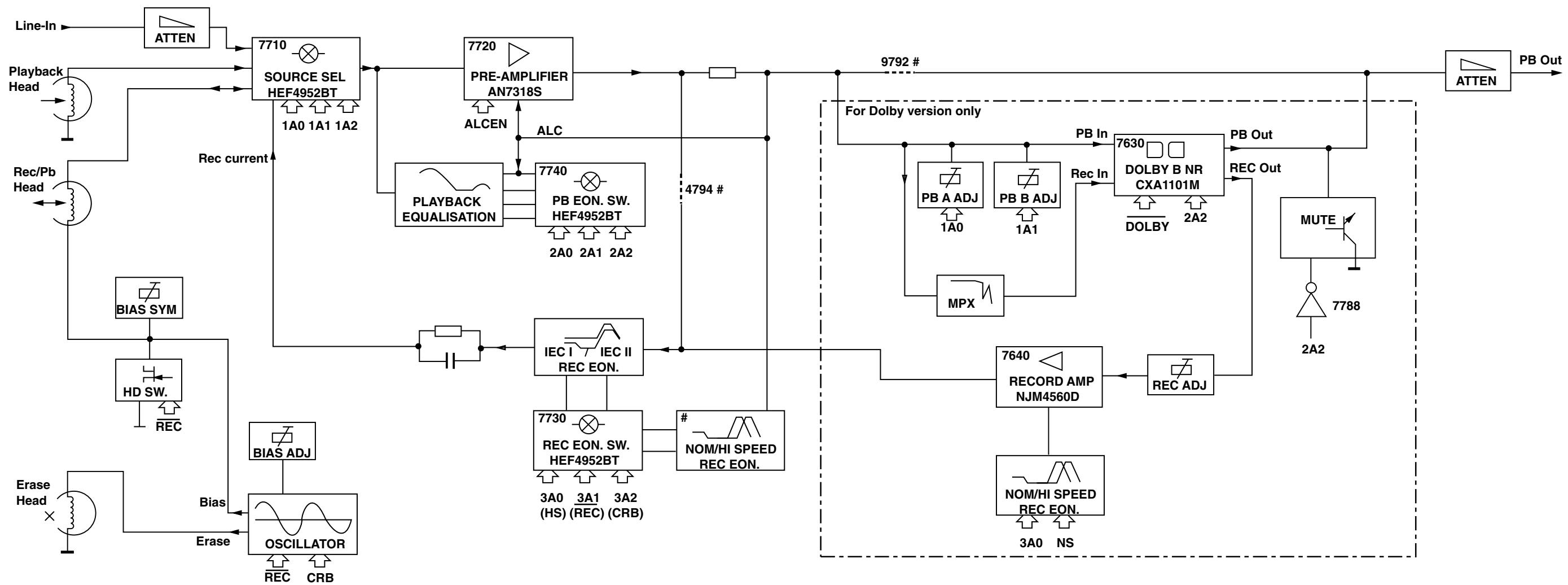
Tapedeck wiring (Double deck)



Variations table for Analog Circuit

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
2624	-	-	100nF
2701 , 2702	150pF	270pF	270pF
2703 , 2704	100pF	220pF	220pF
2717 , 2718	10nF	15nF	15nF
2721 , 2722	6,8nF	6,8nF	-
2727 , 2728	470pF	1nF	1nF
3616	10k	1k	1k
3618	6k8	-	-
3620	10k trimmer	-	-
3622	-	10k trimmer	10k trimmer
3672	4k7	-	-
3676	47k	-	-
3687	220R	220R	-
3688	680R	-	-
3723 , 3724	15k	18k	18k
3725 , 3726	10R	10R	-
3727 , 3728	5k6	6k8	6k8
3729 , 3730	3k3	4k7	4k7
3743 , 3744	1k5	2k2	2k2
3745 , 3746	3k3	5k6	5k6
3754 , 3755	1M	47R	47R

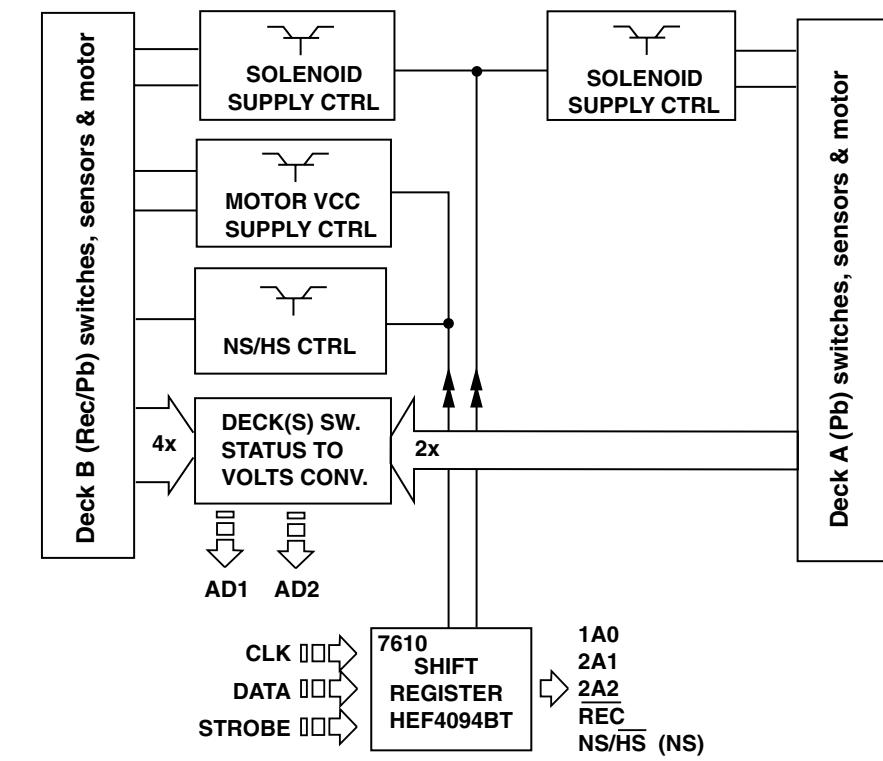
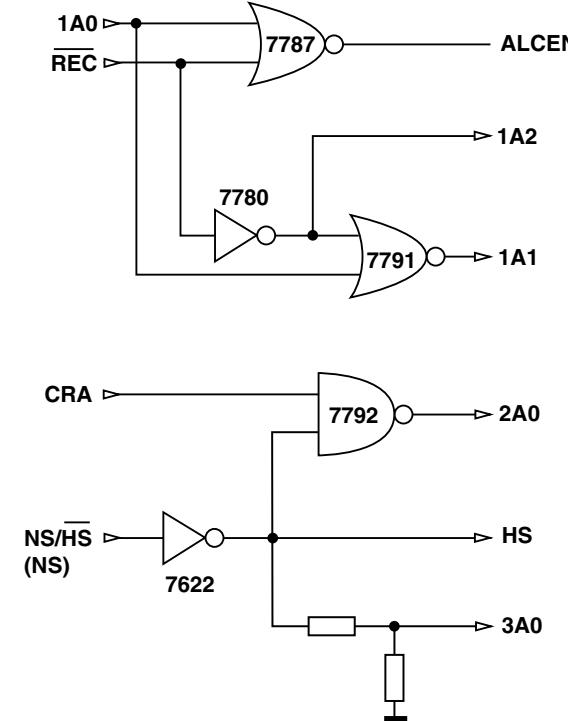
	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
3769	12k	8k2	8k2
3772	6k8	5k6	5k6
4785	-	-	0R jumper
3774	15k	8k2	8k2
6614	1N4148	-	-
7616	BC857B	-	-
7622	BC847B	-	-

BLOCK DIAGRAM

NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines

Direct / Indirect Control lines from Shift Registers



Brief introduction

General

1. Playback Mode

Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.

2. Recording Mode

Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.

3. Dubbing Mode

In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.

4. Mode Selector

The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.

5. Amplifier PB/REC

Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.

6. Automatic Level Control (ALC)

ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762, 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.

7. Muting Circuit (For Non-Dolby version only)

Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.

8. IC7740 (HEF4952BT)

The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.

9. IC7730 (HEF4952BT)

The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).

10. Bias Level

Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.

11. Bias Symm (For Dolby B NR version only)

Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.

12. PB Switch

Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)

During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.

14. IC7610 (HEF4094BT)

IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)

IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by DOLBY, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.

16. 19kHz Filter

The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.

17. Level Adjust

The Variable resistor 3635, 3636, 3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz, 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.

18. Amplifier IC7640 (NJM4560M)

The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.

19. Muting Circuit

The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

CONNECTORS ASSIGNMENTS:**CONNECTOR 1701****INTERCONNECTION TO AF BOARD**

O 1	REC-L	Record input left
O 2	REC-R	Record input right
O 3	GND A	AF Ground
O 4	TAPE-L	Playback output left
O 5	+12V	D.C. supply (+12V) for AF electronics
O 6	TAPE-R	Playback output right
O 7	-CMOS	Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703**INTERCONNECTION TO AF BOARD**

O 1	GND M	Motor Ground
O 2	+MOTOR	D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706**INTERCONNECTION TO FRONT BOARD**

O 1	AD2	Deck sensing switches output voltage / Deck A EOT
O 2	AD1	Deck sensing switches output voltage / Deck B EOT
O 3	+5V	DC supply +5V for ADC network
O 4	GND P	Control & Oscillator Ground
O 5	CLK	HEF4094BT shift register Clock line
O 6	DATA	HEF4094BT shift register Data line
O 7	STROBE	HEF4094BT shift register Strobe line

CONNECTOR 1710**DECK B HEADS CONNECTON (For Non-Dolby version only)**

O 1	B R/P HD L+	R/P Head left channel positive
O 2	GND A	R/P Head return ground
O 3	B R/P HD R+	R/P Head right channel positive
O 4	ERASE HEAD	Erase Head
O 5	GND A	Erase Head ground

CONNECTOR 1720**DECK B HEADS CONNECTON (For Dolby B NR version only)**

O 1	B R/P HD L+	R/P Head left channel positive
O 2	B R/P HD L-	R/P Head left channel negative
O 3	B R/P HD R+	R/P Head right channel positive
O 4	B R/P HD R-	R/P Head right channel negative
O 5	ERASE HEAD	Erase Head
O 6	GND A	Erase Head ground

CONNECTOR 1730**DECK A HEAD CONNECTIONS (For Double Deck versions only)**

O 1	A PB HD L+	Pb Head left channel positive
O 2	GND A	Pb Head return ground shield
O 3	A PB HD R+	Pb Head right channel positive

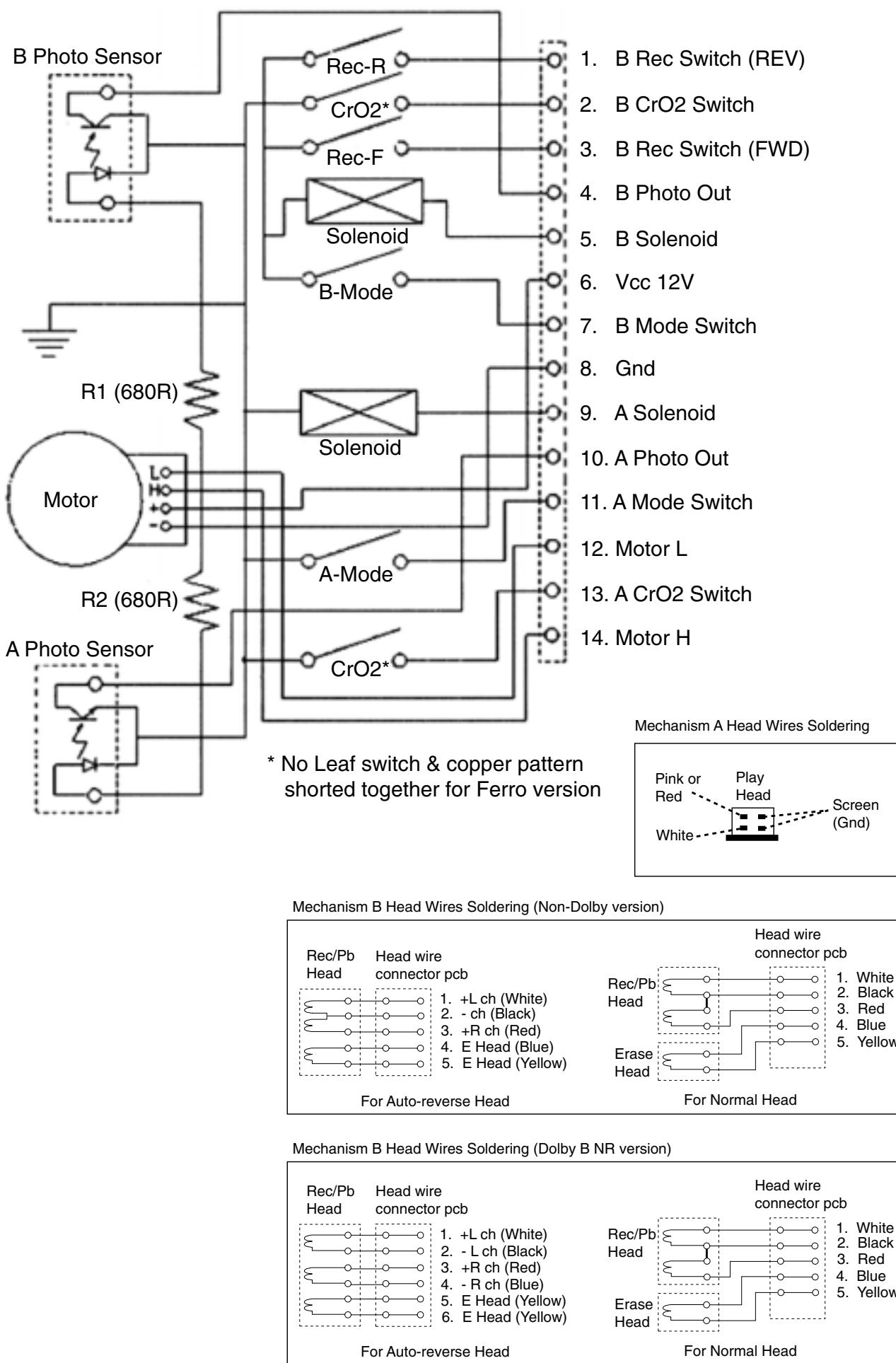
CONNECTOR 1740**DECK A & B CONTROL INTERFACE (For Dolby B NR version only)**

O 1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
O 2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
O 3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
O 4	PHOTO B	Photo sensor output (tape movement indication)	
O 5	SOL B	Solenoid supply for deck B	
O 6	Vcc	Deck / Motor supply	
O 7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
O 8	GND M	Deck / Motor ground	
O 9	SOLA	Solenoid supply for deck A	
O 10	PHOTO A	Photo sensor output (tape movement indication)	
O 11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
O 12	L	L pin for motor	
O 13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
O 14	H	H pin for motor	

CONNECTOR 1770**DECK A & B CONTROL INTERFACE (For Non-Dolby version only)**

O 1	REC REW	Record tab protection status switch (reverse)	[open=on: close=off]
O 2	CrO2 B	Chrome tape detection switch deck B	[open=Cr: close=Fe]
O 3	REC FWD	Record tab protection status switch (forward)	[open=on: close=off]
O 4	PHOTO B	Photo sensor output (tape movement indication)	
O 5	SOL B	Solenoid supply for deck B	
O 6	Vcc	Deck / Motor supply	
O 7	MODE B	Mode switch (head engagement)	[open=off: close=engaged]
O 8	GND M	Deck / Motor ground	
O 9	SOLA	Solenoid supply for deck A	
O 10	PHOTO A	Photo sensor output (tape movement indication)	
O 11	MODE A	Mode switch (head engagement)	[open=off: close=engaged]
O 12	L	L pin for motor	
O 13	CrO2 A	Chrome tape detection switch deck A	[open=Cr: close=Fe]
O 14	H	H pin for motor	

TAPE MECHANISM ELECTRONICS



TAPE ADJUSTMENT & CHECK TABLE

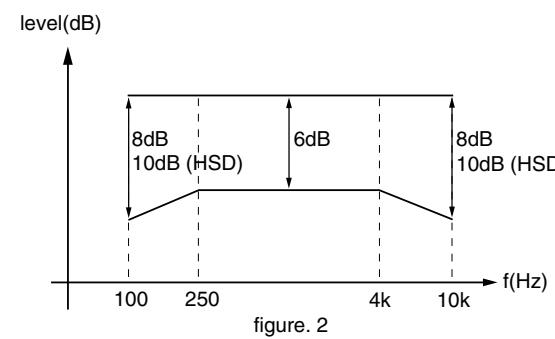
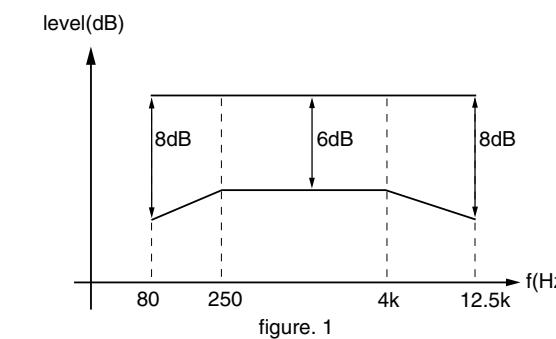
	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST	
					with	to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420	PLAY B	1 or 2 LEFT RIGHT	frequency counter	3620	3150Hz +/- 0.5%
	3150Hz	PLAY A	1 or 2 LEFT RIGHT		check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 3150Hz	PLAY	1 or 2 LEFT RIGHT	W&F-meter	check	<0.4 % DIN
ADJUST AZIMUTH						
DECK A & B	SBC420 10kHz	PLAY FWD	1 or 2 LEFT RIGHT	mV-meter	left hand screw	max. output level
		PLAY REV #	1 or 2 LEFT RIGHT		right hand screw	& left=right
CHECK PLAYBACK FREQUENCY RESPONSE						
DECK A & B	SBC420	PLAY	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig.1
ADJUST BIAS CURRENT						
DECK B	SBC419A^	RECORD	5 or 6 LEFT RIGHT	mV-meter	3773	995mV
	SBC420				check	750mV +/- 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	mV-meter	check	limits see fig. 2 *
Inject 1kHz 8.85mV via 3 or 4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	1 or 2 LEFT RIGHT	THD-meter	check	<3% *

SBC419A^: 4822 397 30069
SBC420 : 4822 397 30071

For Auto-reverse version only

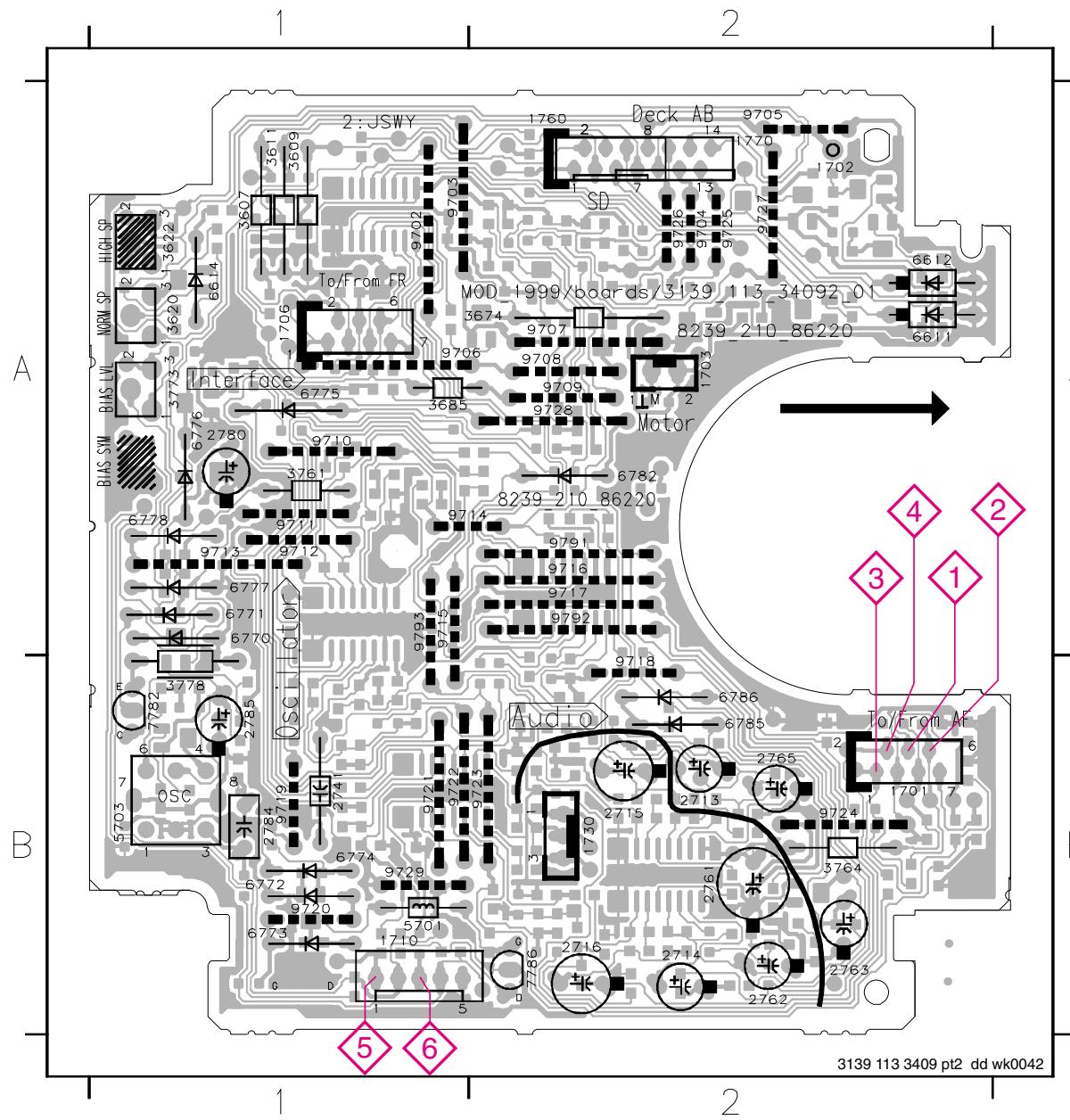
* If high frequencies are not within limits, decrease bias and re-measure.
If distortion is too high, increase bias and re-measure

^ Not applicable for Ferro version



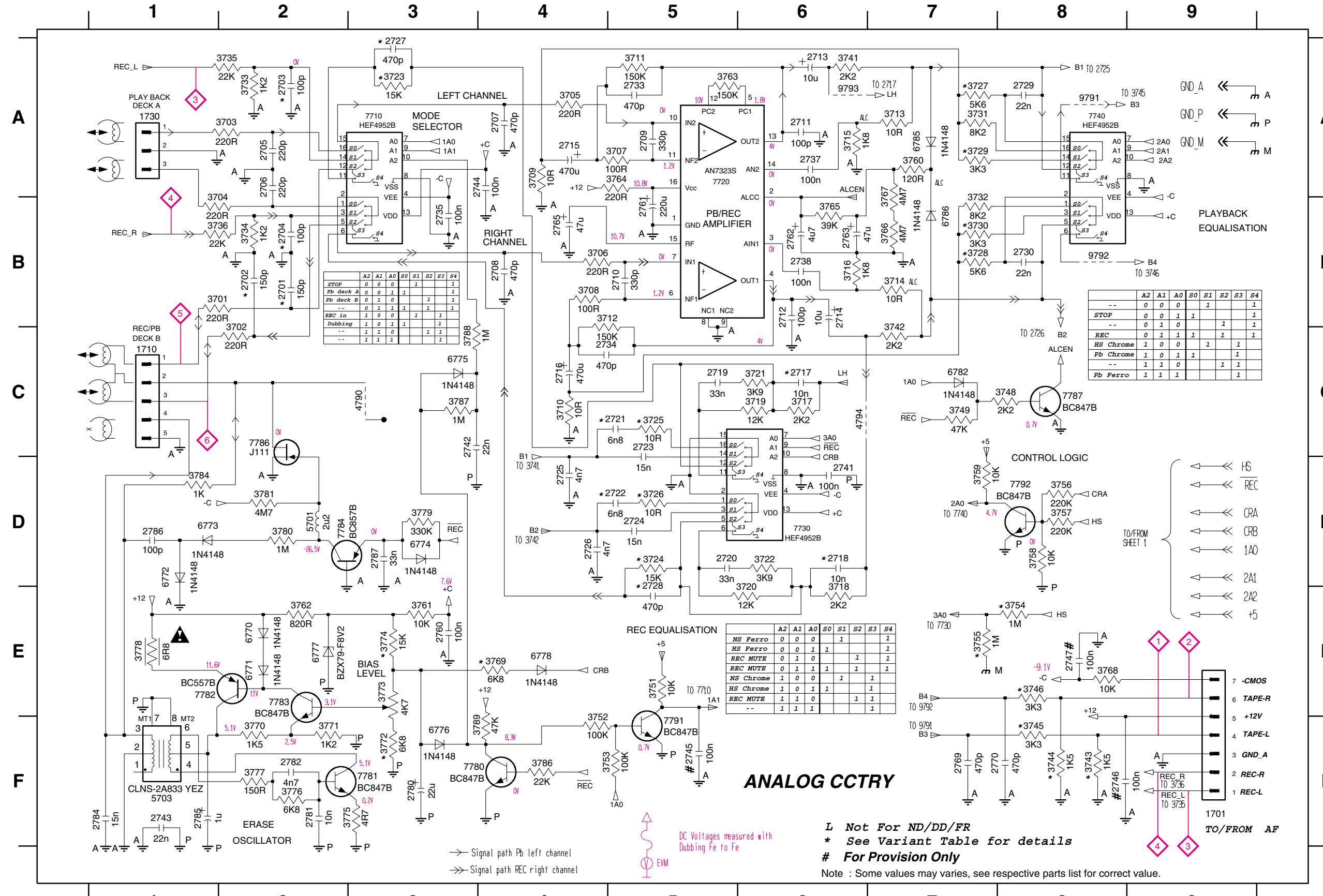
COMPONENT LAYOUT

1701 B2 2714 B2 2784 B1 3761 A1 6770 A1 6782 A2 9706 A1 9715 A1 9724 B2
 1702 A2 2715 B2 2785 B1 3764 B2 6771 A1 6785 B2 9707 A2 9716 A2 9725 A2
 1703 A2 2716 B2 3607 A1 3773 A1 6772 B1 6786 B2 9708 A2 9717 A2 9726 A2
 1706 A1 2741 B1 3609 A1 3778 B1 6773 B1 7782 B1 9709 A2 9718 B2 9727 A2
 1710 B1 2761 B2 3611 A1 5701 B1 6774 B1 7786 B2 9710 A1 9719 B1 9728 A2
 1730 B2 2762 B2 3620 A1 5703 B1 6775 A1 9702 A1 9711 A1 9720 B1 9729 B1
 1760 A2 2763 B2 3622 A1 6611 A2 6776 A1 9703 A1 9721 B1 9791 A2
 1770 A2 2765 B2 3674 A2 6612 A2 6777 A1 9704 A2 9713 A1 9722 B1 9792 A2
 2713 B2 2780 A1 3685 A1 6614 A1 6778 A1 9705 A2 9714 A1 9723 B2 9793 A1



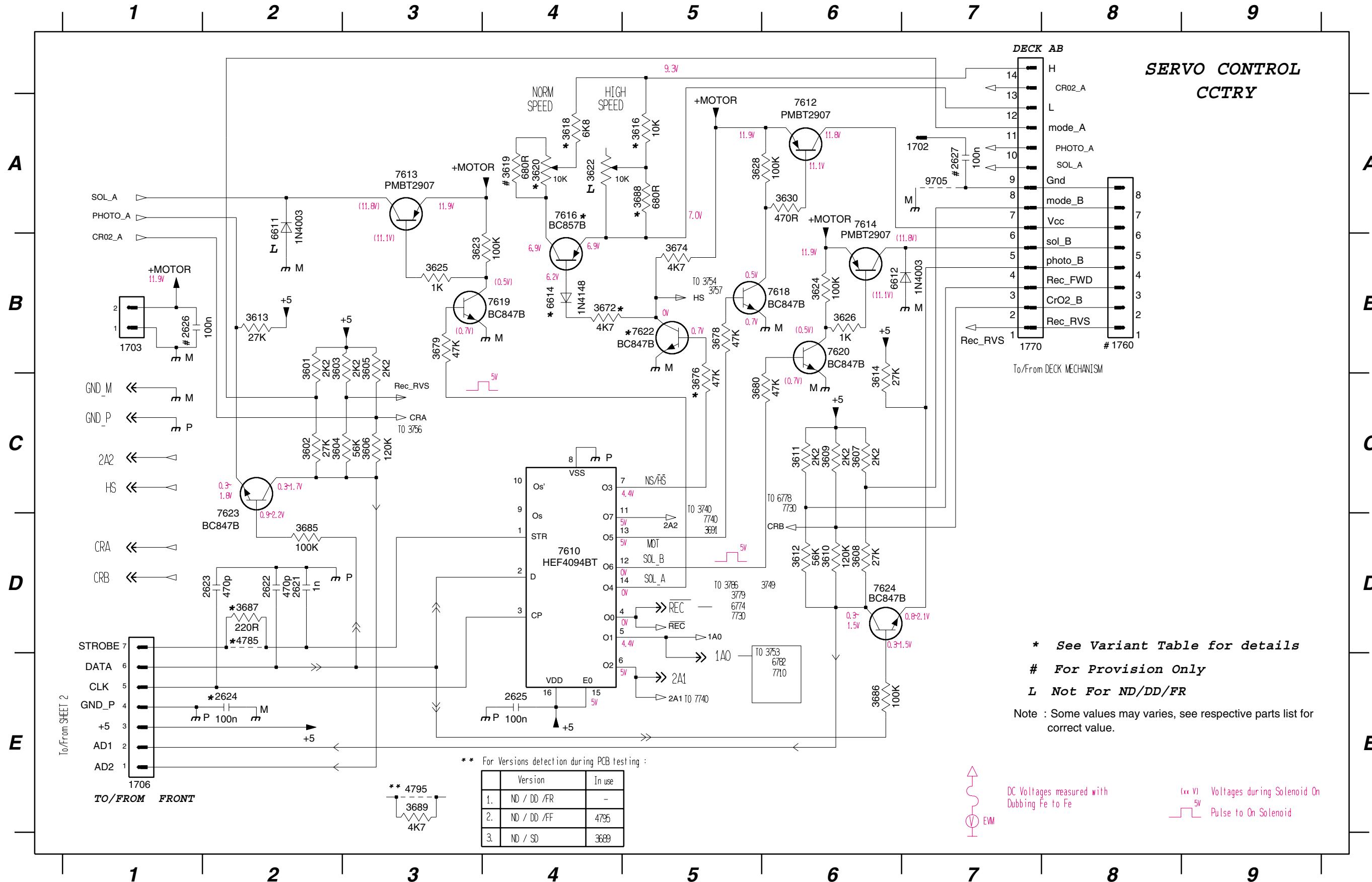
ANALOG CIRCUIT

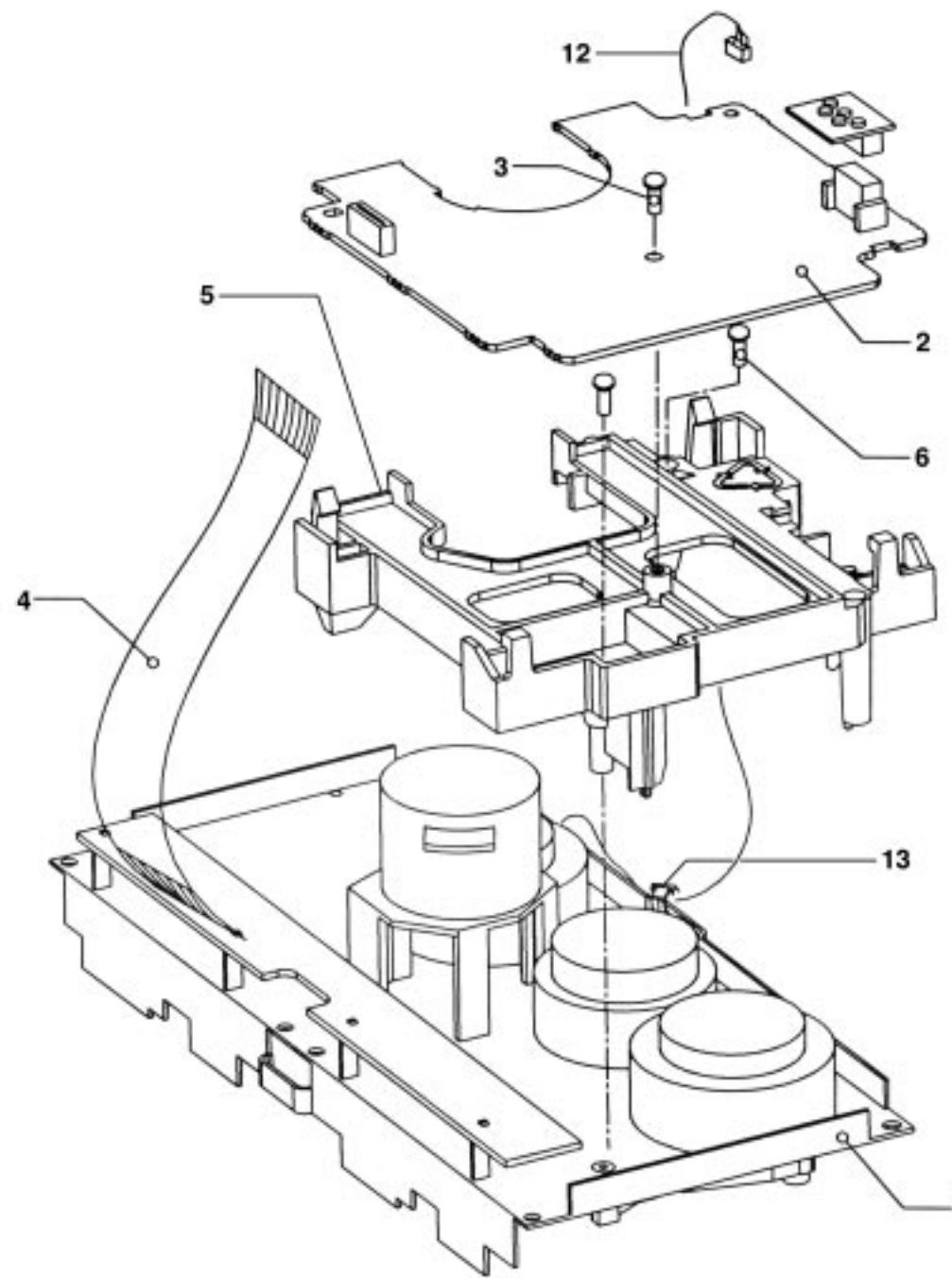
1701 F9 2705 A2 2712 B6 2719 C5 2726 D4 2735 B3 2745 F5 2785 F1 3705 A4 3712 B4 3719 C6 3726 D5 3733 A2 3744 F8 3753 F5 3760 A7 3767 A7 3774 E3 3781 D2 4794 C6 6774 D3 6786 B7 7782 E1 9791 A8
 1710 C1 2706 A2 2713 A6 2720 D5 2727 A3 2737 A6 2746 F8 2786 D1 3706 B4 3713 A7 3720 E6 3727 A7 3734 B2 3745 F8 3754 E8 3761 E3 3768 E8 3775 F3 3784 D1 5701 D2 6775 C3 7710 A3 7783 E2 9792 B8
 1730 A1 2707 A4 2714 B6 2721 C5 2728 E5 2738 B6 2747 E8 2770 F8 3707 A5 3714 B7 3721 C6 3728 B7 3735 A2 3746 E8 3755 E7 3762 E2 3769 E4 3776 F2 3786 F4 5703 F1 6776 F3 7720 A5 7784 D2 9793 A6
 2701 B2 2708 B4 2715 A4 2722 D5 2729 A8 2741 D6 2760 E3 2780 F3 3701 B1 3708 B4 3715 A6 3722 D6 3729 A7 3736 B1 3748 C8 3756 D8 3763 A5 3770 F2 3777 F2 3787 C3 6770 E2 6777 E2 7730 D6 7786 C2
 2702 B2 2709 A5 2716 C4 2723 C5 2730 B8 2742 C3 2761 B5 2781 F2 3702 C2 3709 A4 3716 B6 3723 A3 3730 B7 3741 A6 3749 C7 3757 D8 3764 A5 3771 F2 3778 E1 3788 C3 6771 E2 6778 E4 7740 A8 7787 C8
 2703 A2 2710 B5 2717 C6 2724 D5 2733 A5 2743 F1 2762 B6 2782 F2 3703 A2 3710 C4 3717 C6 3724 D5 3731 A7 3742 C7 3751 E5 3758 D8 3765 B6 3772 F3 3779 D3 3789 F4 6772 D1 6782 C7 7780 F4 7791 F5
 2704 B2 2711 A6 2718 D6 2725 D4 2734 C4 2744 A4 2763 B6 2784 F1 3704 B1 3711 A5 3718 E6 3725 C5 3732 B7 3743 F8 3759 D7 3766 B7 3773 E3 3780 D2 4790 C3 6773 D1 6785 A7 7781 F3 7792 D8



SERVO CONTROL CIRCUIT

1702 A7 **1760 B8** **2622 D2** **2625 E4** **3601 B2** **3604 C2** **3607 C6** **3610 D6** **3613 B2** **3618 A4** **3622 A4** **3625 B3** **3630 A6** **3676 C5** **3680 C5** **3687 D2** **4785 D2** **6612 B6** **7612 A6** **7616 A4** **7620 B6** **7624 D6**
1703 B1 **1770 B7** **2623 D2** **2626 B1** **3602 C2** **3605 B3** **3608 D6** **3611 C6** **3614 C6** **3619 A4** **3623 B3** **3626 B6** **3672 B4** **3678 B5** **3685 D2** **3688 A5** **4795 E3** **6614 B4** **7613 A3** **7618 B6** **7622 B5** **9705 A7**
1706 E1 **2621 D2** **2624 E2** **2627 A7** **3603 B2** **3606 C3** **3609 C6** **3612 D6** **3616 A5** **3620 A4** **3624 B6** **3628 A5** **3674 B5** **3679 B3** **3686 E6** **3689 E3** **6611 A2** **7610 D4** **7614 A6** **7619 B4** **7623 D2**

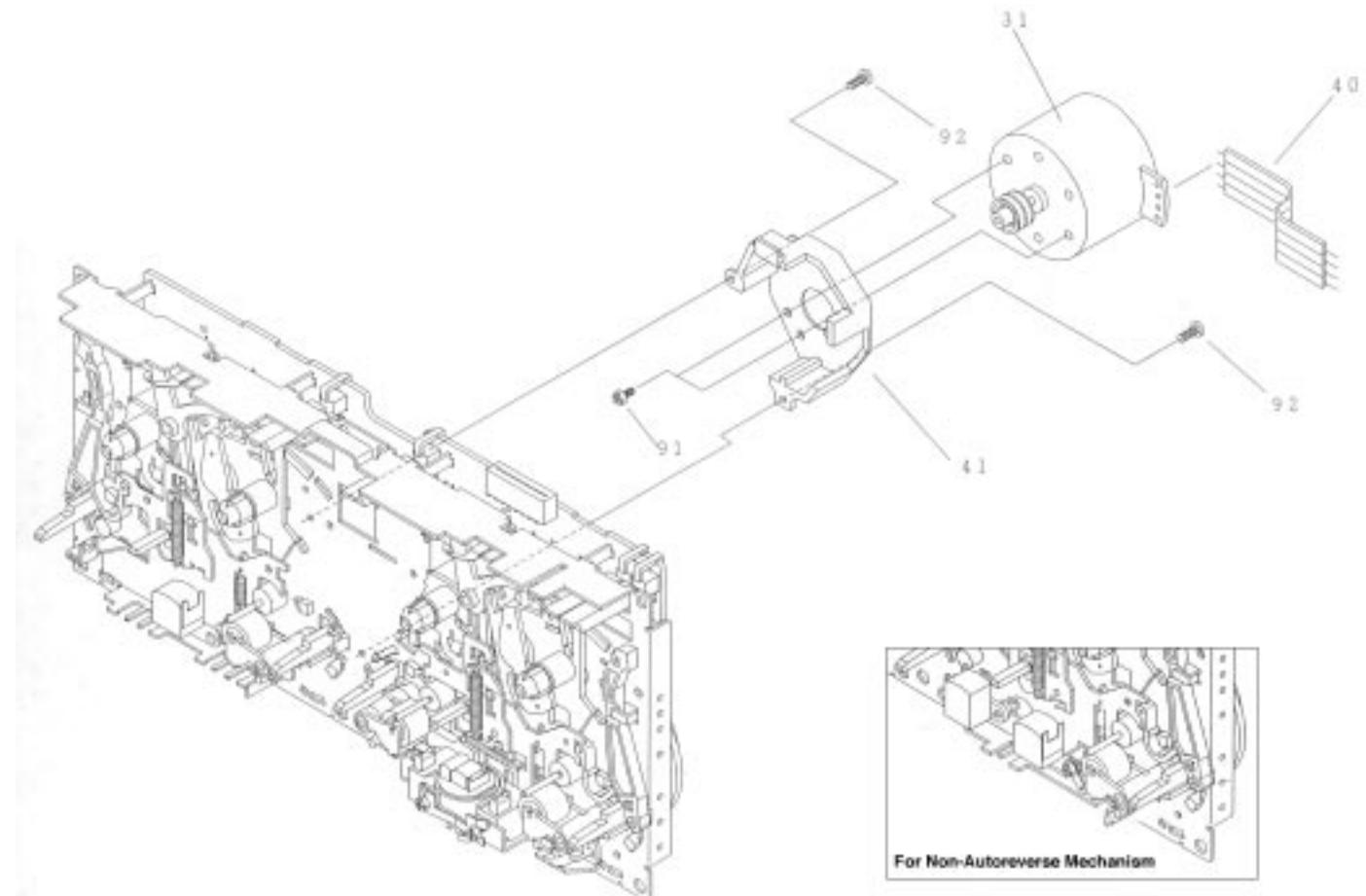




TAPE MODULE EXPLODED VIEW

- 1 3139 118 77130 Autoreverse Mech. CWE44FR01
- 1 3139 118 77140 Non-Autoreverse Mech. CWE44FF02 Chrome/Ferro
- 1 3139 118 77950 Non-Autoreverse Mech. CWE44FF05 Ferro
- 3 - Screw D3 x 10
- 6 - Screw M2 x 16
- 7 3139 110 34080 Flex Cable 14 pin 7,5 cm

Note: Only the parts mentioned in this list are normal service spare parts.



TAPE MECHANISM - MOTOR EXPLODED VIEW

- 31 4822 361 11055 Motor Assembly
- 91 - Screw M2,6 x 5
- 92 - Screw M2 x 5

Note: Only the parts mentioned in this list are normal service spare parts.

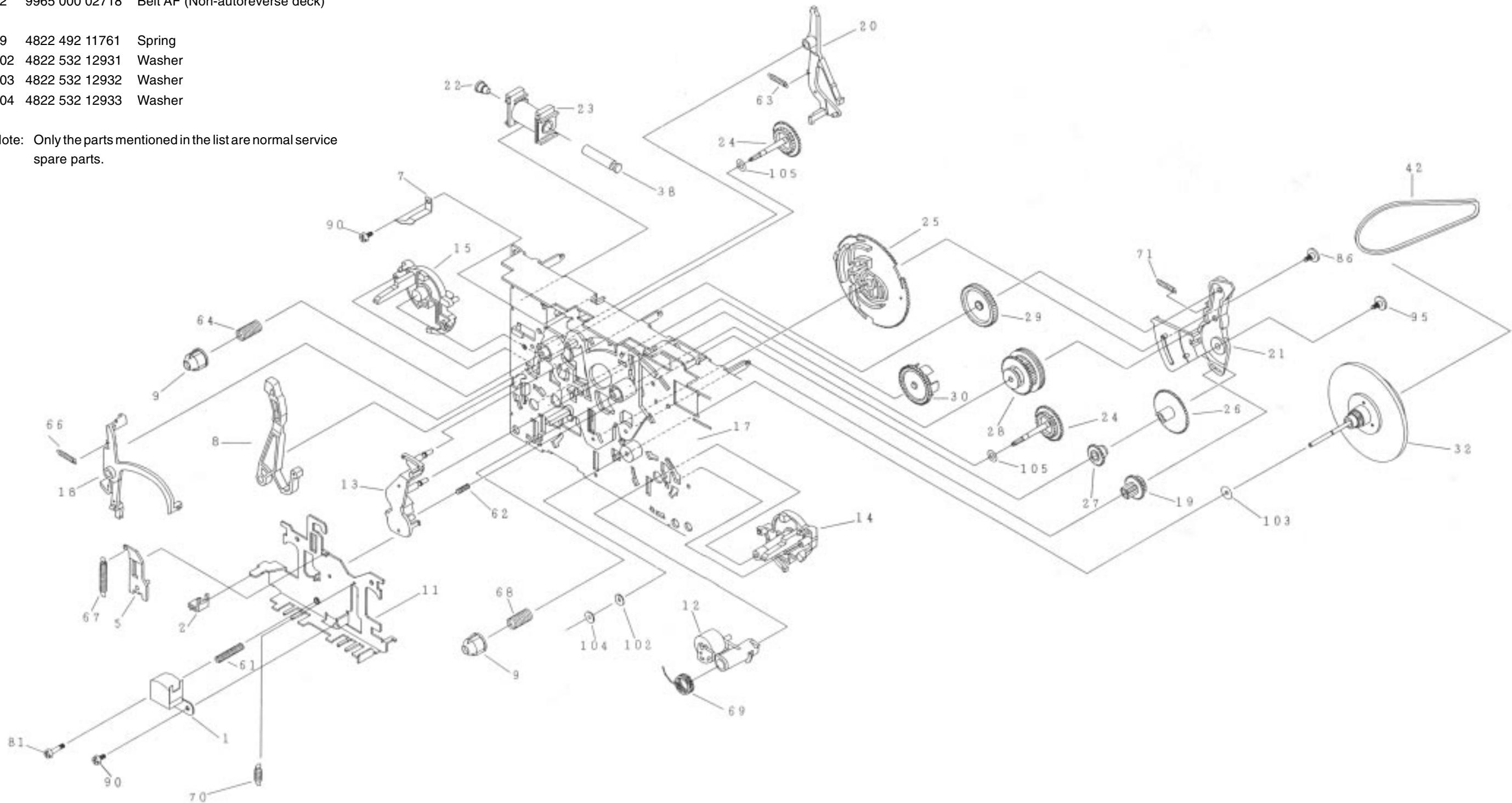
TAPE MECHANISM A - PLAY

MECHANICAL PARTS - PLAY MECHANISM

1	9965 000 02313	Play Head (Non-Autoreverse deck)
1	9965 000 02321	Play Head (Autoreverse deck)
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
42	9965 000 02315	Belt AF (Autoreverse deck)
42	9965 000 02718	Belt AF (Non-autoreverse deck)

69	4822	492	11761	Spring
102	4822	532	12931	Washer
103	4822	532	12932	Washer
104	4822	532	12933	Washer

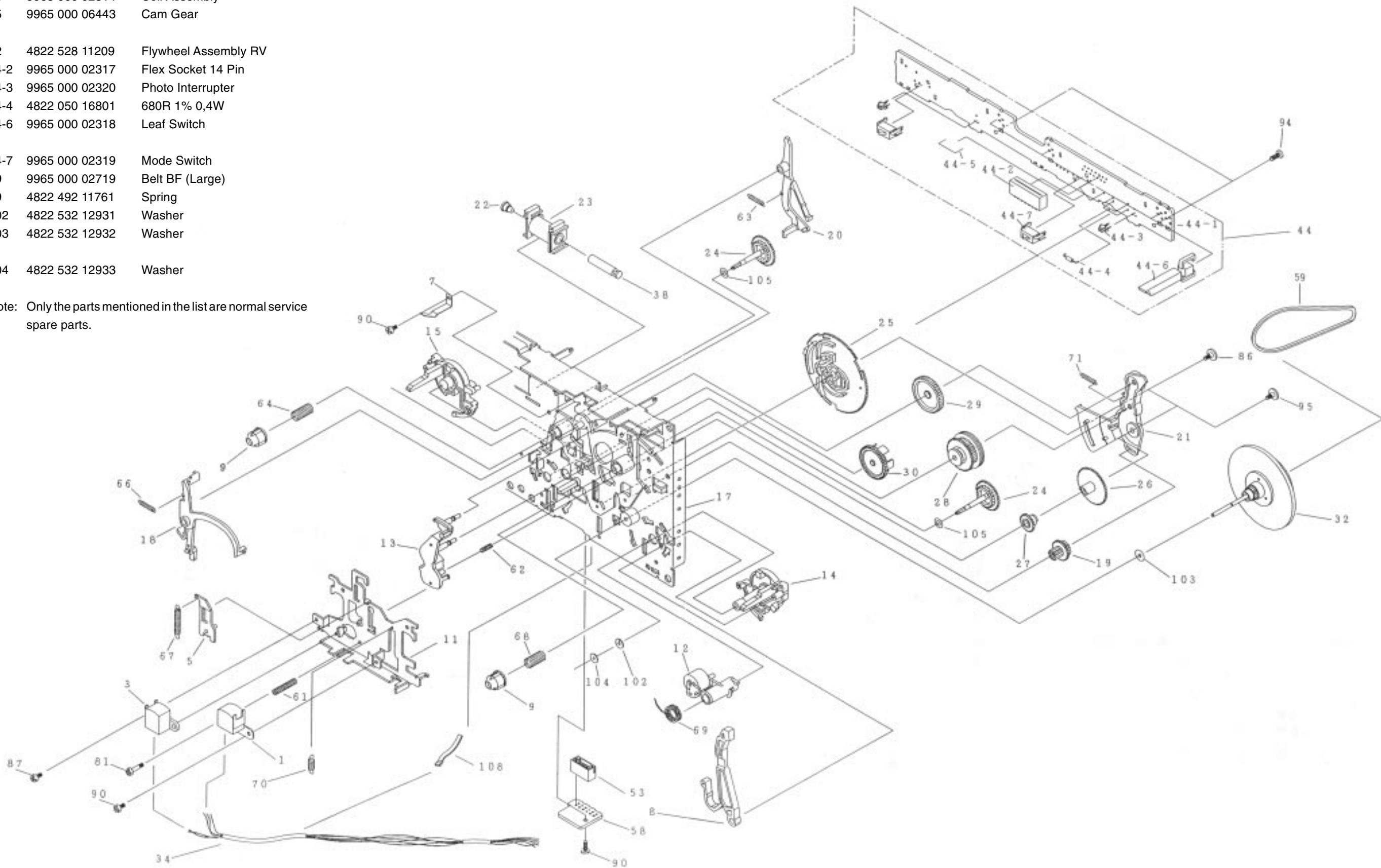
Note: Only the parts mentioned in the list are normal service spare parts.



TAPE MECHANISM B - RECORD/PLAYBACK (Non-Autoreverse version)**MECHANICAL PARTS - REC/PB MECHANISM**

1	9965 000 02313	Play Head
3	9965 000 02600	Head, Erase
12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
59	9965 000 02719	Belt BF (Large)
69	4822 492 11761	Spring
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer

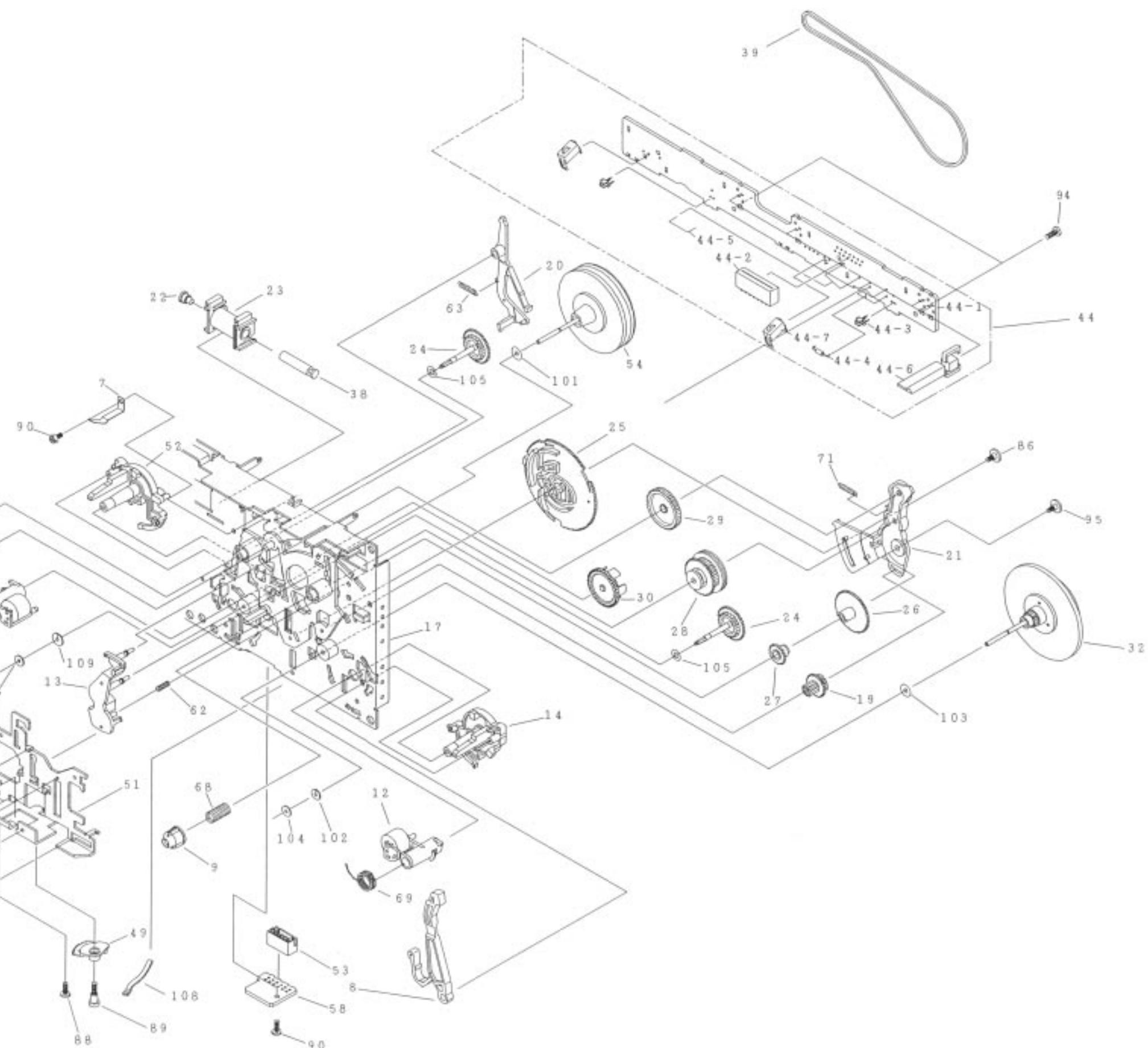
Note: Only the parts mentioned in the list are normal service
spare parts.



TAPE MECHANISM B - RECORD/PLAYBACK (Autoreverse version)**MECHANICAL PARTS - REC/PB MECHANISM**

12	4822 402 10972	Pinch Arm Assembly R
23	9965 000 02314	Coil Assembly
25	9965 000 06443	Cam Gear
32	4822 528 11209	Flywheel Assembly RV
39	9965 000 02322	Belt AF
44-2	9965 000 02317	Flex Socket 14 Pin
44-3	9965 000 02320	Photo Interrupter
44-4	4822 050 16801	680R 1% 0,4W
44-6	9965 000 02318	Leaf Switch
44-7	9965 000 02319	Mode Switch
45	9965 000 02323	Rec/Pb Head Assembly
50	4822 402 10973	Pinch Arm Assembly L
54	9965 000 02324	Flywheel Assembly L
69	4822 492 11761	Spring
73	4822 492 11762	Spring
101	9965 000 02325	Washer
102	4822 532 12931	Washer
103	4822 532 12932	Washer
104	4822 532 12933	Washer
107	9965 000 02326	Washer
109	9965 000 02327	Washer

Note: Only the parts mentioned in the list are normal service spare parts.



ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD**MISCELLANEOUS**

1701	482226710953	Flex Socket 7pin Vert.
1706	482226710953	Flex Socket 7pin Vert.
1770	482226751255	Flex Socket 14pin Vert.

CAPACITORS

2621	532212231647	1nF 10% 63V
2622	532212234099	470pF 10% 63V
2623	532212234099	470pF 10% 63V
2624	482212614585	100nF 10% 50V only for Ferro
2625	482212614585	100nF 10% 50V
2701	532212233538	150pF 2% 63V Autoreverse
2701	482212233216	270pF 5% 63V Non-autoreverse
2702	532212233538	150pF 2% 63V Autoreverse
2702	482212233216	270pF 5% 63V Non-autoreverse
2703	532212232531	100pF 5% 50V Autoreverse
2703	482212233575	220pF 5% 63V Non-autoreverse
2704	532212232531	100pF 5% 50V Autoreverse
2704	482212233575	220pF 5% 63V Non-autoreverse
2705	482212233575	220pF 5% 63V
2706	482212233575	220pF 5% 63V
2707	532212234099	470pF 10% 63V
2708	532212234099	470pF 10% 63V
2709	532212231863	330pF 5% 63V
2710	532212231863	330pF 5% 63V
2711	532212232531	100pF 5% 50V
2712	532212232531	100pF 5% 50V
2713	482212440248	10μF 20% 63V
2714	482212440248	10μF 20% 63V
2715	482212480195	470μF 20% 10V
2716	482212480195	470μF 20% 10V
2717	482212233177	10nF 20% 50V Autoreverse
2717	482212613188	15nF 5% 63V Non-autoreverse
2718	482212233177	10nF 20% 50V Autoreverse
2718	482212613188	15nF 5% 63V Non-autoreverse
2719	482212612105	33nF 5% 50V
2720	482212612105	33nF 5% 50V
2721	532212231866	6,8nF 10% 63V not for Ferro
2722	532212231866	6,8nF 10% 63V not for Ferro
2723	482212613188	15nF 5% 63V
2724	482212613188	15nF 5% 63V
2725	532212610223	4,7nF 10% 63V
2726	532212610223	4,7nF 10% 63V
2727	532212234099	470pF 10% 63V Autoreverse
2727	532212231647	1nF 10% 63V Non-autoreverse
2728	532212234099	470pF 10% 63V Autoreverse
2728	532212231647	1nF 10% 63V Non-autoreverse
2729	532212232654	22nF 10% 63V
2730	532212232654	22nF 10% 63V
2733	532212234099	470pF 10% 63V
2734	532212234099	470pF 10% 63V
2735	482212614585	100nF 10% 50V
2737	482212614585	100nF 10% 50V
1701	482226710953	Flex Socket 7pin Vert.
1706	482226710953	Flex Socket 7pin Vert.
1770	482226751255	Flex Socket 14pin Vert.
2621	532212231647	1nF 10% 63V
2622	532212234099	470pF 10% 63V
2623	532212234099	470pF 10% 63V
2624	482212614585	100nF 10% 50V only for Ferro
2625	482212614585	100nF 10% 50V
2701	532212233538	150pF 2% 63V Autoreverse
2701	482212233216	270pF 5% 63V Non-autoreverse
2702	532212233538	150pF 2% 63V Autoreverse
2702	482212233216	270pF 5% 63V Non-autoreverse
2703	532212232531	100pF 5% 50V Autoreverse
2703	482212233575	220pF 5% 63V Non-autoreverse
2704	532212232531	100pF 5% 50V Autoreverse
2704	482212233575	220pF 5% 63V Non-autoreverse
2705	482212233575	220pF 5% 63V
2706	482212233575	220pF 5% 63V
2707	532212234099	470pF 10% 63V
2708	532212234099	470pF 10% 63V
2709	532212231863	330pF 5% 63V
2710	532212231863	330pF 5% 63V
2711	532212232531	100pF 5% 50V
2712	532212232531	100pF 5% 50V
2713	482212440248	10μF 20% 63V
2714	482212440248	10μF 20% 63V
2715	482212480195	470μF 20% 10V
2716	482212480195	470μF 20% 10V
2717	482212233177	10nF 20% 50V Autoreverse
2717	482212613188	15nF 5% 63V Non-autoreverse
2718	482212233177	10nF 20% 50V Autoreverse
2718	482212613188	15nF 5% 63V Non-autoreverse
2719	482212612105	33nF 5% 50V
2720	482212612105	33nF 5% 50V
2721	532212231866	6,8nF 10% 63V not for Ferro
2722	532212231866	6,8nF 10% 63V not for Ferro
2723	482212613188	15nF 5% 63V
2724	482212613188	15nF 5% 63V
2725	532212610223	4,7nF 10% 63V
2726	532212610223	4,7nF 10% 63V
2727	532212234099	470pF 10% 63V Autoreverse
2727	532212231647	1nF 10% 63V Non-autoreverse
2728	532212234099	470pF 10% 63V Autoreverse
2728	532212231647	1nF 10% 63V Non-autoreverse
2729	532212232654	22nF 10% 63V
2730	532212232654	22nF 10% 63V
2733	532212234099	470pF 10% 63V
2734	532212234099	470pF 10% 63V
2735	482212614585	100nF 10% 50V
2737	482212614585	100nF 10% 50V

RESISTORS

3601	482211711449	2k2 1% 0,1W
3602	482205120273	27k 5% 0,1W
3603	482211711449	2k2 1% 0,1W
3604	482211711148	56k 1% 0,1W
3605	482211711449	2k2 1% 0,1W
3606	482205120124	120k 5% 0,1W
3607	482211652256	2k2 5% 0,5W
3608	482205120273	27k 5% 0,1W
3609	482211652256	2k2 5% 0,5W
3610	482205120124	120k 5% 0,1W
3611	482211652256	2k2 5% 0,5W
3612	482211711148	56k 1% 0,1W
3613	482205120273	27k 5% 0,1W
3614	482205120273	27k 5% 0,1W
3616	482211710833	10k 1% 0,1W Autoreverse
3616	482205110102	1k 2% 0,25W Non-autoreverse
3618	482211711507	6k8 1% 0,1W Autoreverse
3620	482210011141	Trim. 10k 30% Autoreverse
3622	482210011141	Trim. 10k 30% Non-autoreverse
3623	482211710837	100k 1% 0,1W
3624	482211710837	100k 1% 0,1W
3625	482205110102	1k 2% 0,25W
3626	482205110102	1k 2% 0,25W
3628	482211710837	100k 1% 0,1W
3630	482205120471	470R 5% 0,1W
3672	482205120472	4k7 5% 0,1W Autoreverse
3674	482211652283	4k7 5% 0,5W
3676	482211710834	47k 1% 0,1W Autoreverse
3678	482211710834	47k 1% 0,1W
3680	482211710834	47k 1% 0,1W

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD

3685	482211652234	100k 5% 0,5W			3745	482205120332	3k3 5% 0,1W	Autoreverse
3686	482211710837	100k 1% 0,1W			3745	482205120562	5k6 5% 0,1W	Non-autoreverse
3687	482211711503	220R 1% 0,1W not for Ferro			3746</td			

ELECTRICAL PARTS LIST - ETF7 NON-DOLBY BOARD**RESISTORS**

4706	482205120008	0R Jumper 0805	6612	482213031878	1N4003G	
4707	482205120008	0R Jumper 0805	6614	482213030621	1N4148	Autoreverse
4708	482205120008	0R Jumper 0805	6770	482213030621	1N4148	
4709	482205120008	0R Jumper 0805	6771	482213030621	1N4148	
4710	482205120008	0R Jumper 0805	6772	482213030621	1N4148	
4711	482205120008	0R Jumper 0805	6773	482213030621	1N4148	
4712	482205120008	0R Jumper 0805	6774	482213030621	1N4148	
4713	482205120008	0R Jumper 0805	6775	482213030621	1N4148	
4714	482205120008	0R Jumper 0805	6776	482213030621	1N4148	
4715	482205120008	0R Jumper 0805	6777	482213034382	BZX79-F8V2	
4716	482205120008	0R Jumper 0805	6778	482213030621	1N4148	
4717	482205120008	0R Jumper 0805	6782	482213030621	1N4148	
4718	482205120008	0R Jumper 0805	6785	482213030621	1N4148	
4719	482205120008	0R Jumper 0805	6786	482213030621	1N4148	
4720	482205120008	0R Jumper 0805				
4721	482205120008	0R Jumper 0805				

TRANSISTORS & INTEGRATED CIRCUITS

4722	482205120008	0R Jumper 0805	7610	532220911306	HEF4094BT	
4723	482205120008	0R Jumper 0805	7612	482213011201	PMBT2907	
4724	482205120008	0R Jumper 0805	7613	482213011201	PMBT2907	
4725	482205120008	0R Jumper 0805	7614	482213011201	PMBT2907	
4726	482205120008	0R Jumper 0805	7616	482213060373	BC857B	Autoreverse
4727	482205120008	0R Jumper 0805	7618	482213060511	BC847B	
4728	482205120008	0R Jumper 0805	7619	482213060511	BC847B	
4729	482205120008	0R Jumper 0805	7620	482213060511	BC847B	
4730	482205120008	0R Jumper 0805	7622	482213060511	BC847B	Autoreverse
4731	482205120008	0R Jumper 0805	7623	482213060511	BC847B	
4732	482205120008	0R Jumper 0805	7624	482213060511	BC847B	
4733	482205120008	0R Jumper 0805	7710	482220932919	HEF4952BT	
4734	482205120008	0R Jumper 0805	7720	932214000668	AN7323S	
4735	482205120008	0R Jumper 0805	7730	482220932919	HEF4952BT	
4736	482205120008	0R Jumper 0805	7740	482220932919	HEF4952BT	
4737	482205120008	0R Jumper 0805	7780	482213060511	BC847B	
4738	482205120008	0R Jumper 0805	7781	482213042804	BC817-25	
4739	482205120008	0R Jumper 0805	7782	482213044568	BC557B	
4740	482205120008	0R Jumper 0805	7783	482213060511	BC847B	
4741	482205120008	0R Jumper 0805	7784	482213060373	BC857B	
4742	482205120008	0R Jumper 0805	7786	482213063494	J111	
4744	482205120008	0R Jumper 0805	7787	482213060511	BC847B	
4745	482205120008	0R Jumper 0805	7791	482213060511	BC847B	
4746	482205120008	0R Jumper 0805	7792	482213060511	BC847B	
4748	482205120008	0R Jumper 0805				
4785	482205120008	0R Jumper 0805 only for Ferro				
4790	482205120008	0R Jumper 0805				
4794	482205120008	0R Jumper 0805				
4795	482205120008	0R Jumper 0805				

Note: Only the parts mentioned in this list are normal service spare parts.

COILS & FILTERS

5701	482215711477	Coil 2,2µH 5%
5703	482215620946	Osc Coil 100kHz

DIODES

6611	482213031878	1N4003G
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3CDC-LLC-DA11

(3 Disc Carousel Changer)

Layout stage .3

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Component Layout Main Board	10-8
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Partslist	10-12



Service hints

CAUTION

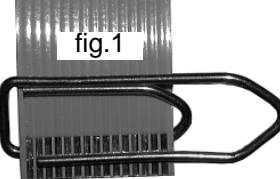
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

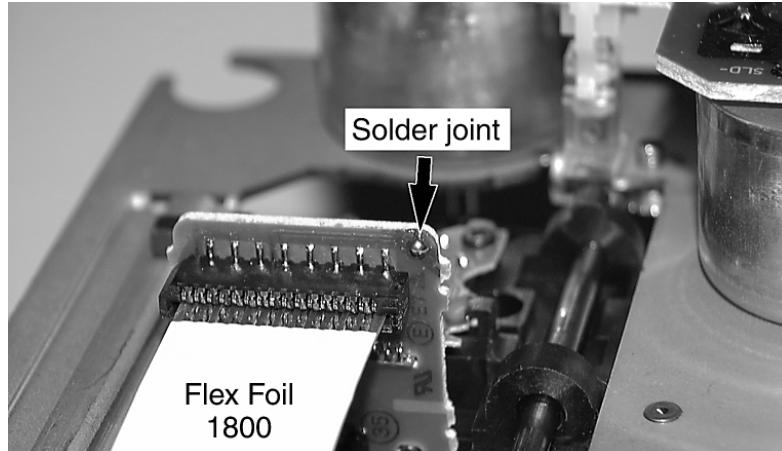
The following steps have to be done when replacing the CD mechanism:

1. Disconnect flexfoil cable from the old CD drive
2. Put a paperclip on the flexfoil to short-circuit the contacts (fig.1)
3. Remove the old CD drive
4. Remove paperclip from the flexfoil and connect it to the new drive
5. Position the new CD drive in its studs
6. Remove solder joint from the Laserunit



Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.

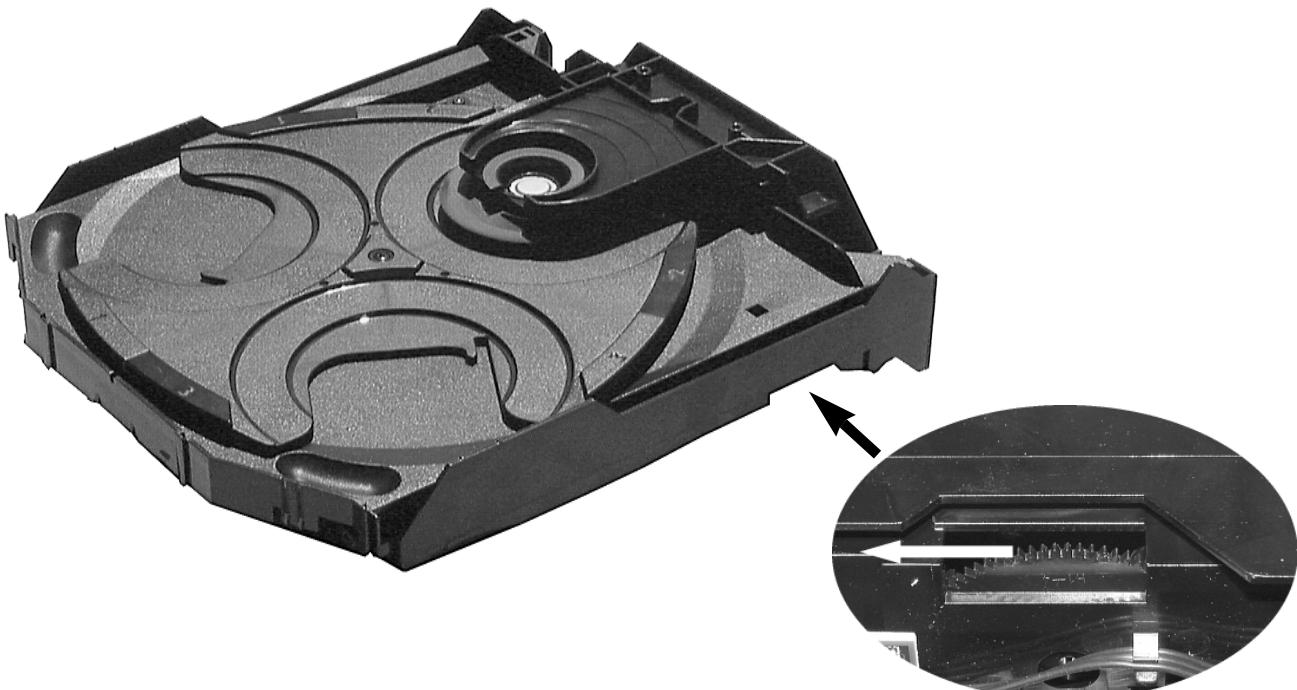
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.



Emergency open

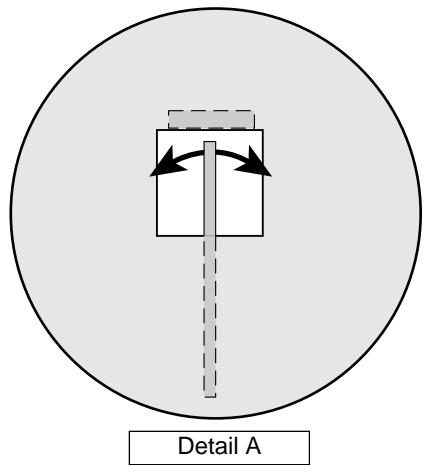
In case of a Supply fault, the tray can be opened manually.

1. Remove the top cover of the set to get access to the Changer Module.
2. Turn gearwheel clockwise (as shown in picture below).

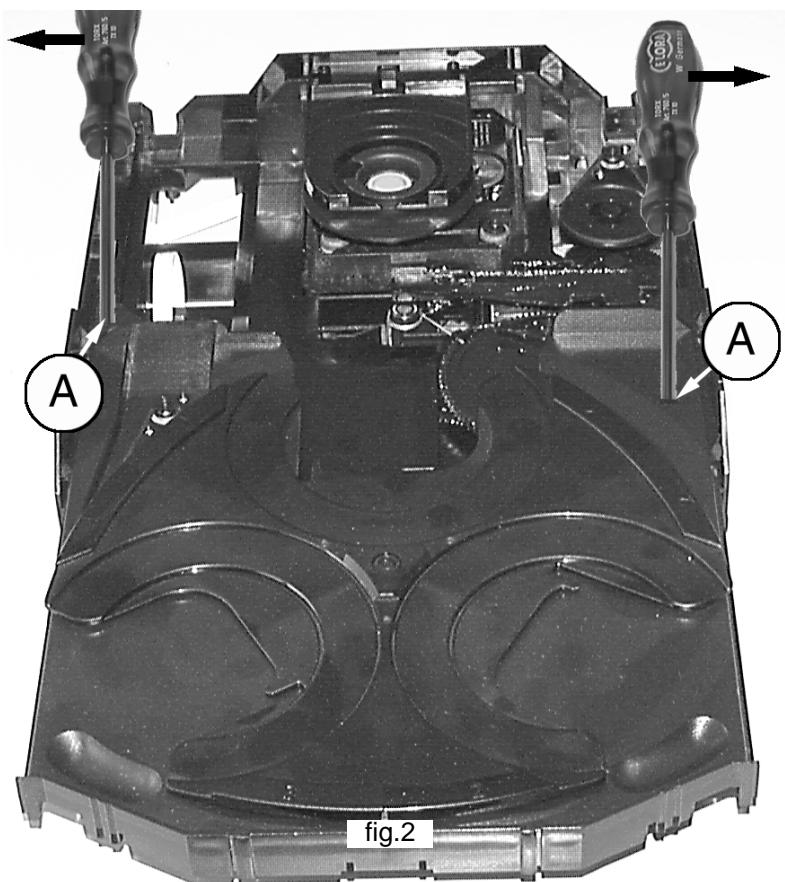


Service hints**Dismantling of Tray**

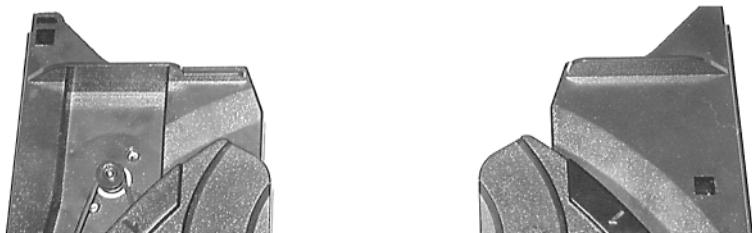
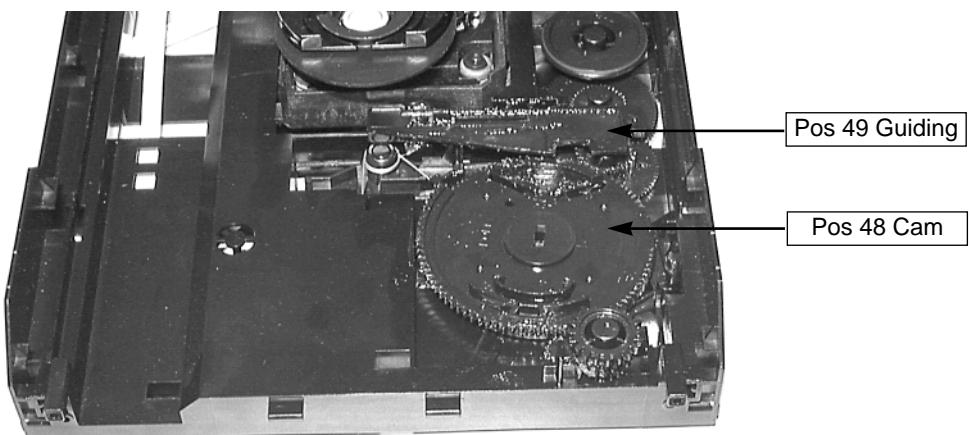
1. Open the tray.
2. Release 2x catch as shown in fig. 2 and Detail A
3. Pull tray out.

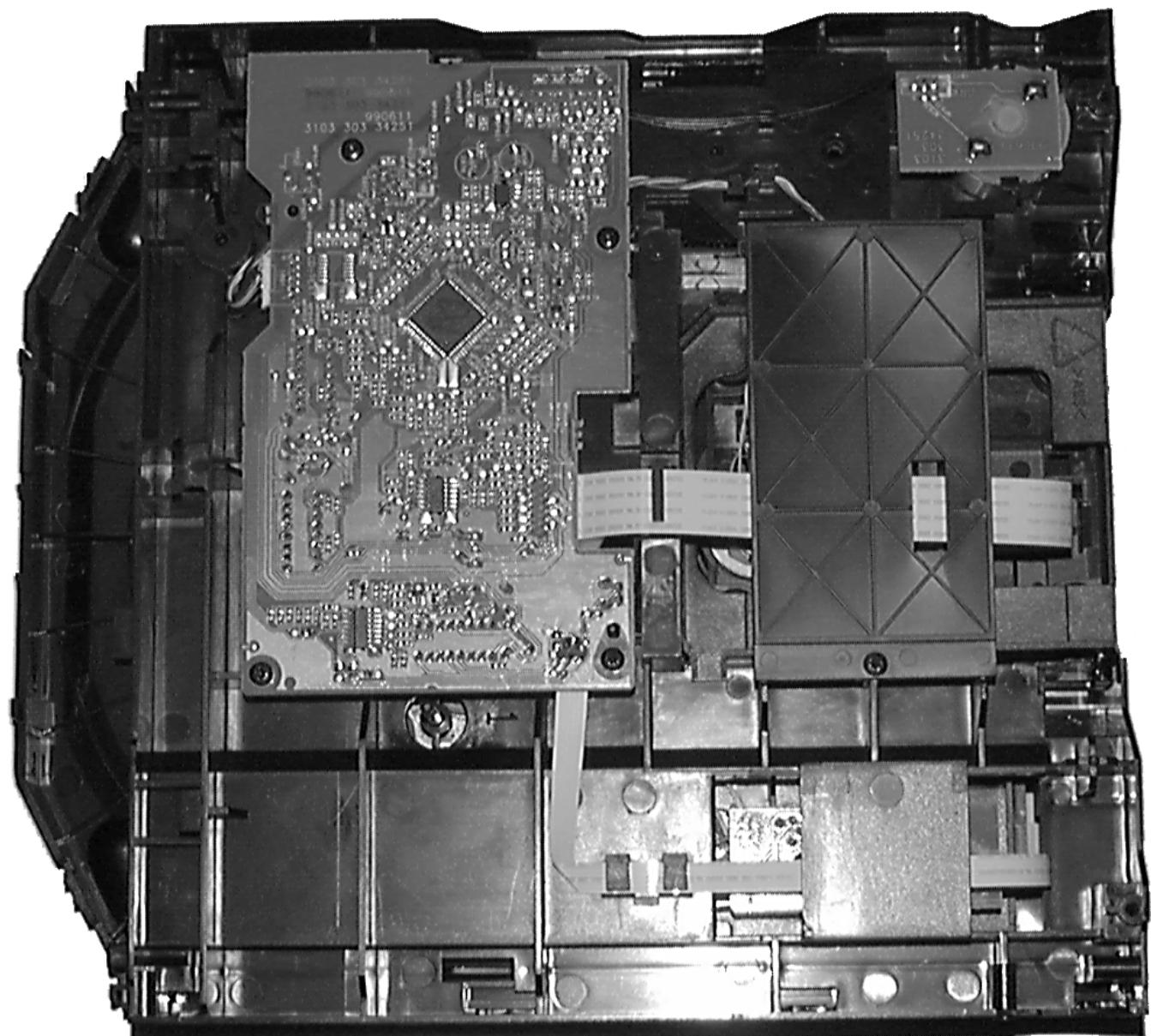


Detail A

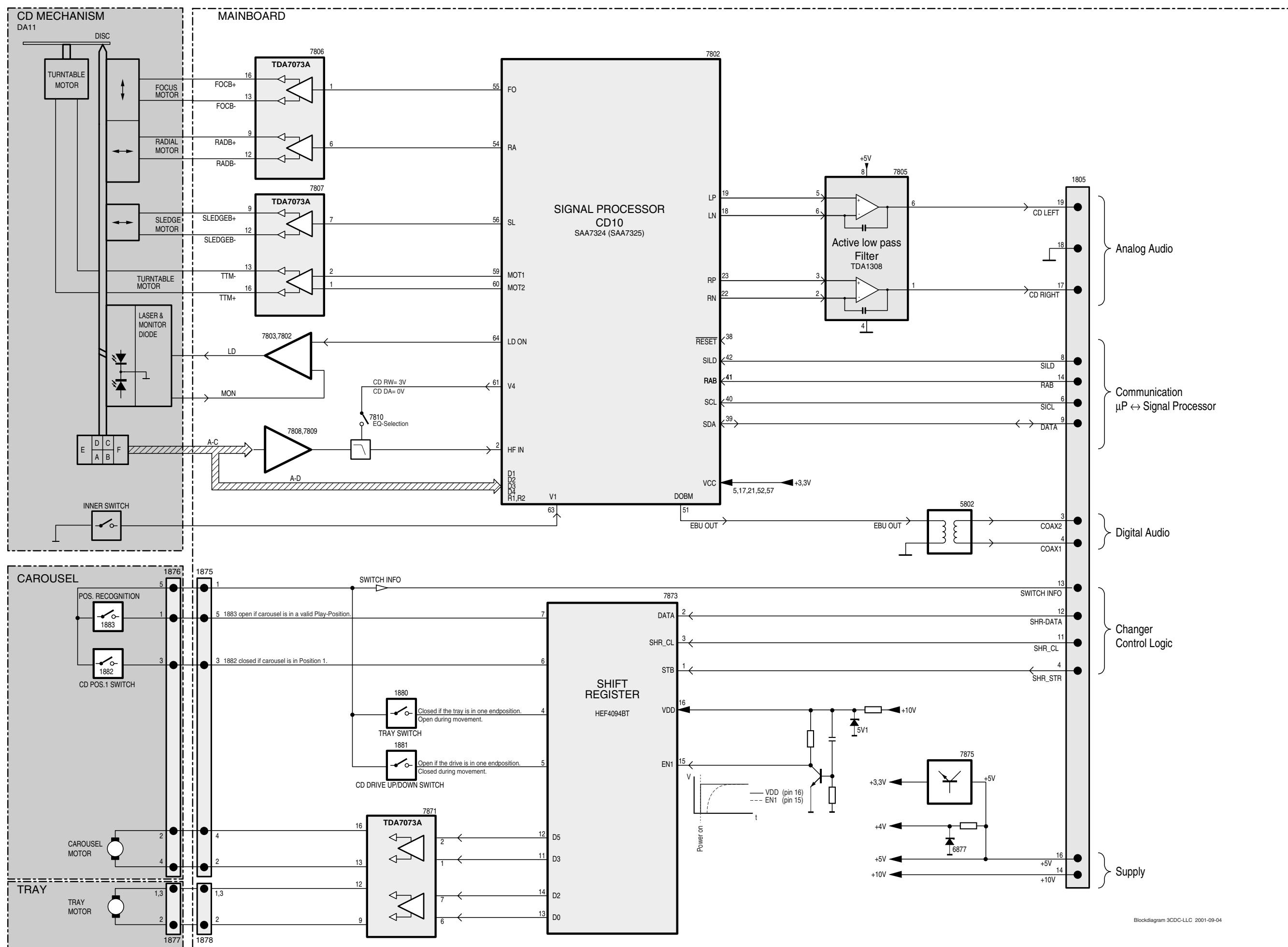
**Assembling of Tray**

1. Turn Cam (pos. 48) clockwise to end position.
2. If necessary - move Guiding (pos. 49) to the right end position.
3. Insert the Tray.

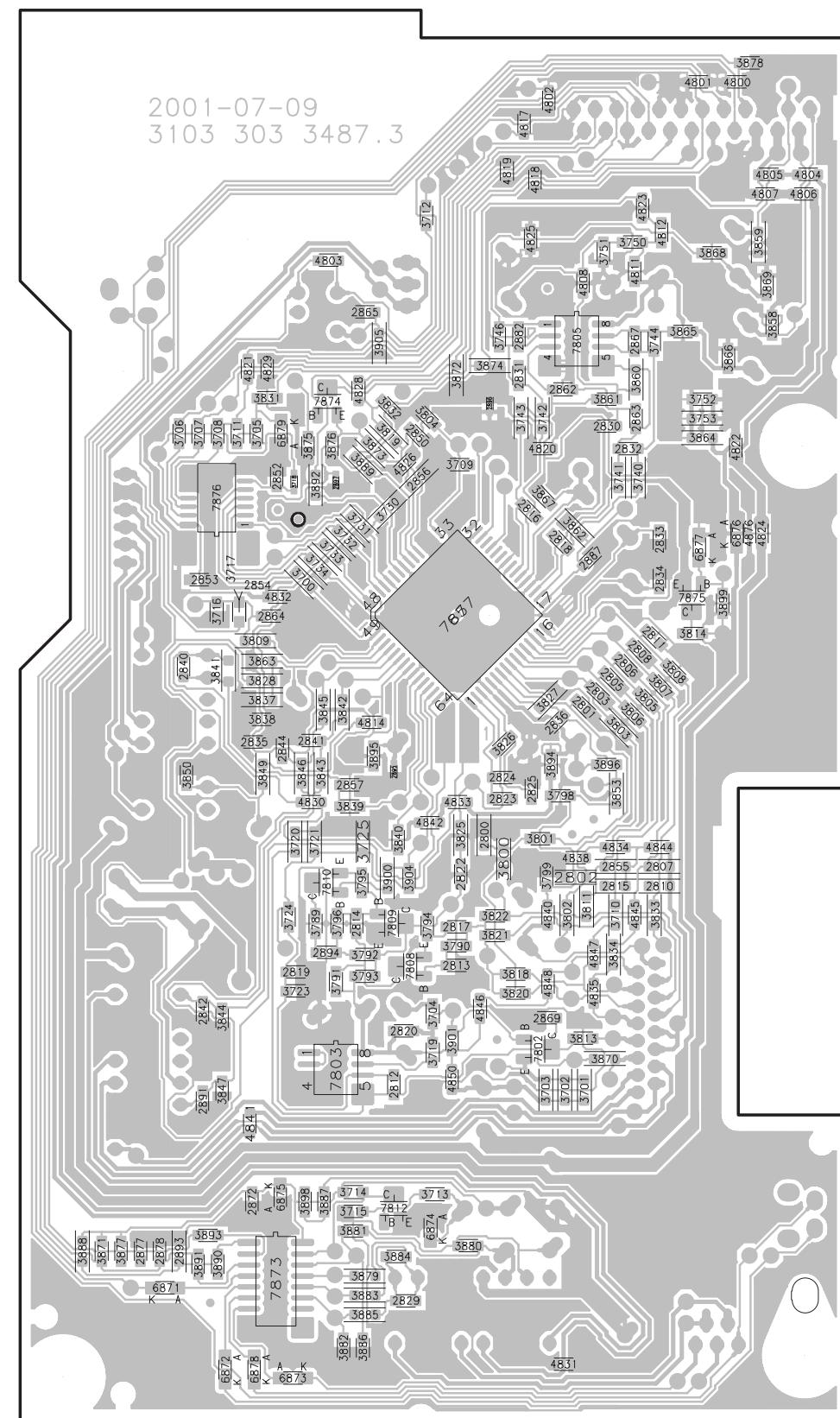


Service Position

BLOCK DIAGRAM 3CDC-LLC-DA11



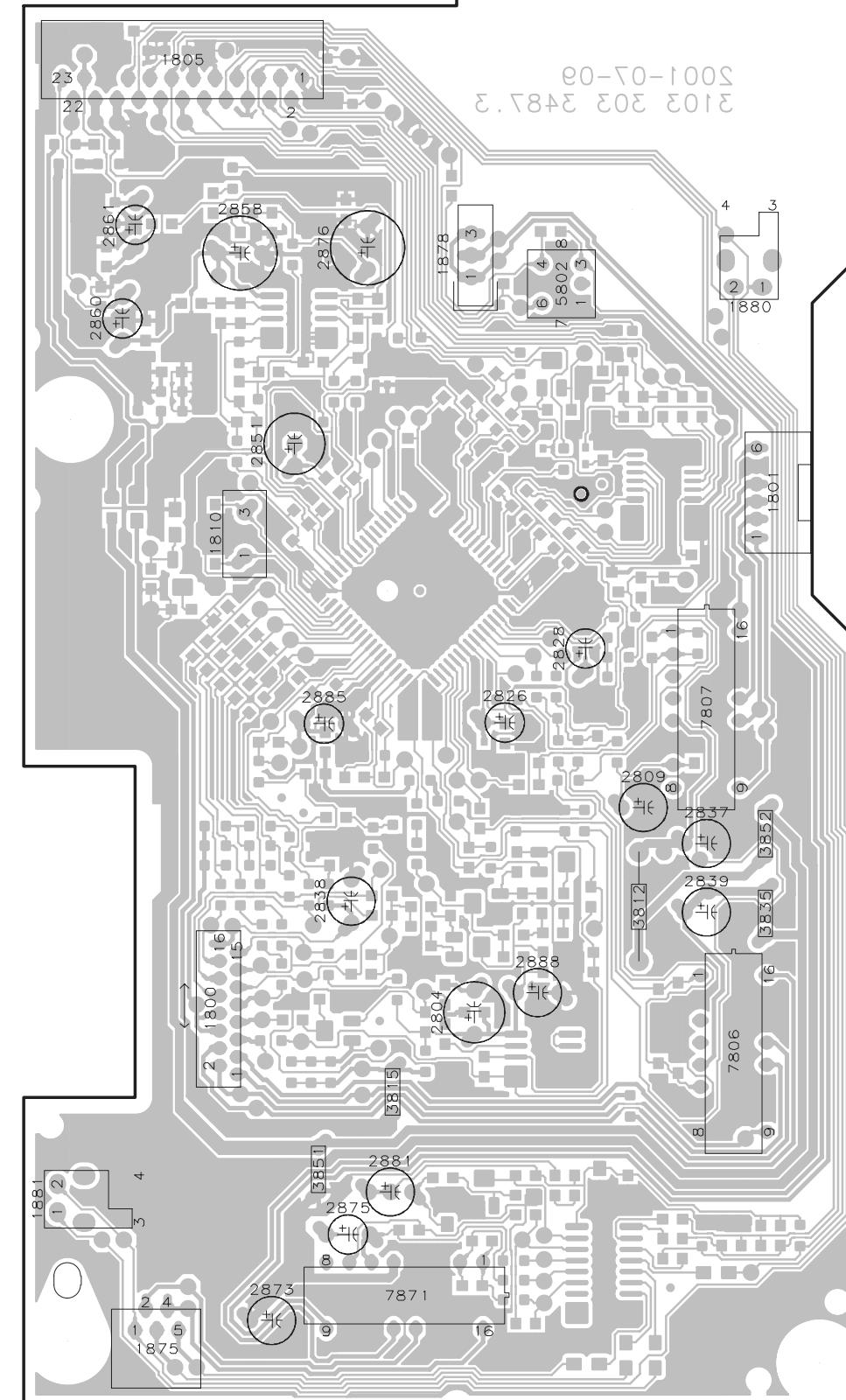
3CDC-LLC Copperside view



Mapping

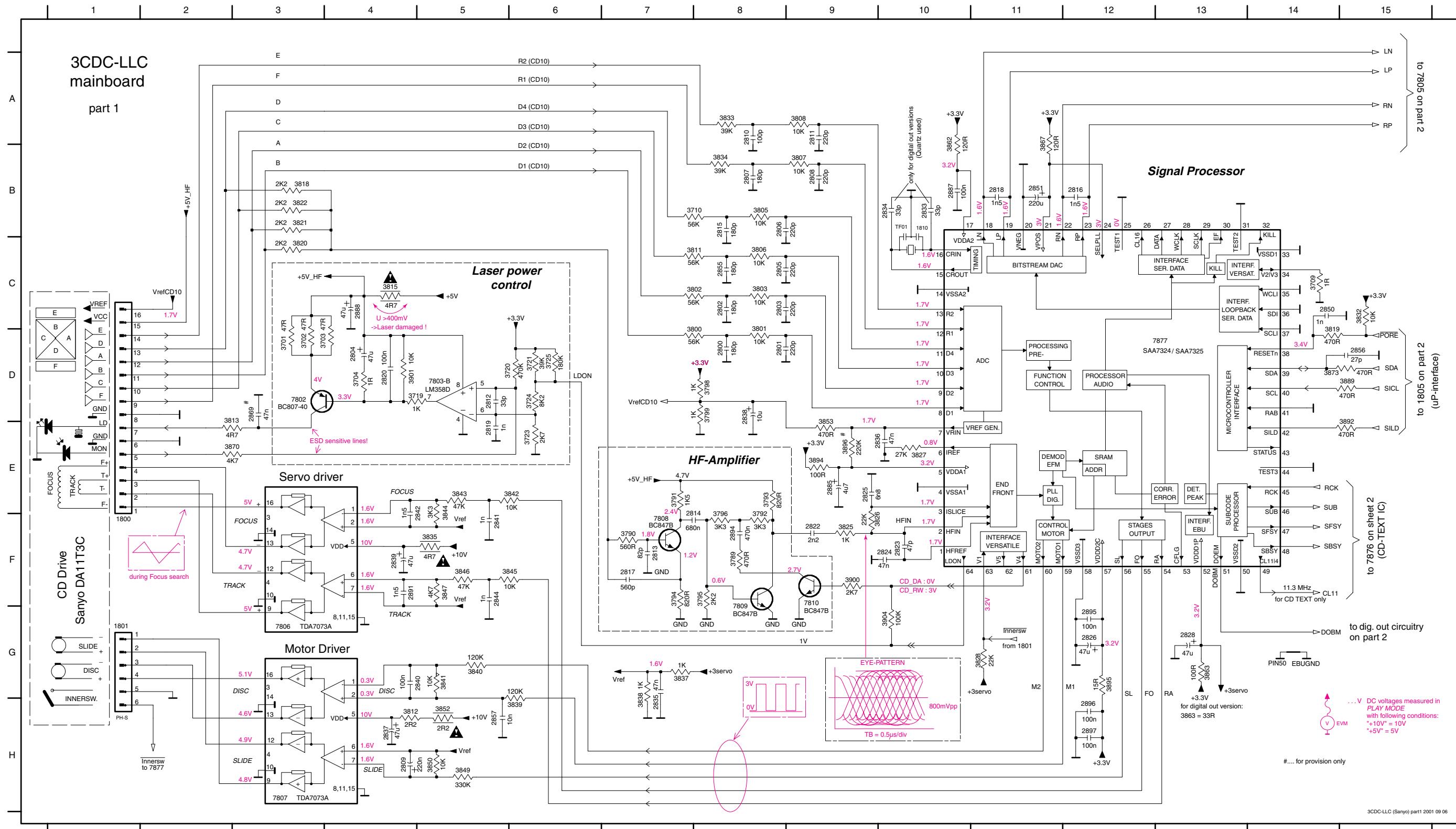
Copperside	Componentside
2800 E3	3741 C4
2801 D4	3742 C4
2802 E4	3743 C3
2803 D4	3744 B4
2805 D4	3746 B3
2806 D4	3750 B4
2807 E4	3751 B4
2808 D4	3752 C4
2810 E4	3753 C4
2811 D4	3789 F2
2812 G3	3790 F3
2813 F3	3791 F3
2814 F2	3792 F3
2815 E4	3793 F3
2816 C3	3794 F3
2817 F3	3795 E2
2818 C4	3796 F2
2819 F2	3798 E4
2820 F3	3799 E4
2822 E3	3800 E3
2823 E3	3801 E4
2824 E3	3802 F4
2825 E3	3803 D4
2829 H3	3804 C3
2830 C4	3805 D4
2831 B3	3806 D4
2832 C4	3807 A3
2833 C4	3808 D4
2834 D4	3809 D2
2835 E2	3811 F4
2836 D4	3813 F4
2840 D1	3814 D4
2841 E2	3818 F3
2842 F2	3819 C3
2844 E2	3820 F2
2850 C3	3821 F3
2852 C2	3822 F3
2853 D2	3825 E3
2854 D2	3826 E3
2855 E4	3827 D4
2856 C3	3828 D2
2857 E2	3831 C2
2862 C4	3832 C3
2863 C4	3833 F4
2864 D2	3834 F4
2865 B3	3835 F4
2867 B4	3837 D2
2869 F4	3838 D2
2872 G2	3840 E3
2877 H1	3841 D2
2878 H1	3842 F3
2882 B3	3843 E2
2887 C4	3844 F4
2891 G2	3845 D2
2893 H1	3846 E2
2894 F2	3847 G2
2895 E3	3849 E2
2896 C3	3850 E1
2897 C2	3853 E4
3700 D2	3855 B5
3701 G4	3859 B5
3702 G4	3860 B4
3703 G4	3861 C4
3704 F3	3862 C4
3705 C2	3863 D2
3706 C1	3864 C4
3707 C2	3865 B4
3708 C2	3866 B5
3709 C3	3867 C4
3710 F4	3868 B5
3711 C2	3869 B5
3712 A3	3870 F4
3713 G3	3871 H1
3714 G2	3872 B3
3715 G2	3873 C3
3716 D2	3874 B3
3717 D2	3875 C2
3718 C2	3876 C2
3719 F3	3877 H1
3720 E2	3878 A5
3721 E2	3879 H3
3723 F2	3880 G3
3724 F2	3881 G2
3725 E2	3882 H2
3730 C3	3883 H3
3731 C2	3884 H3
3732 C2	3885 H3
3733 C2	3886 H2
3734 D2	3887 G2
3740 C4	3888 H1

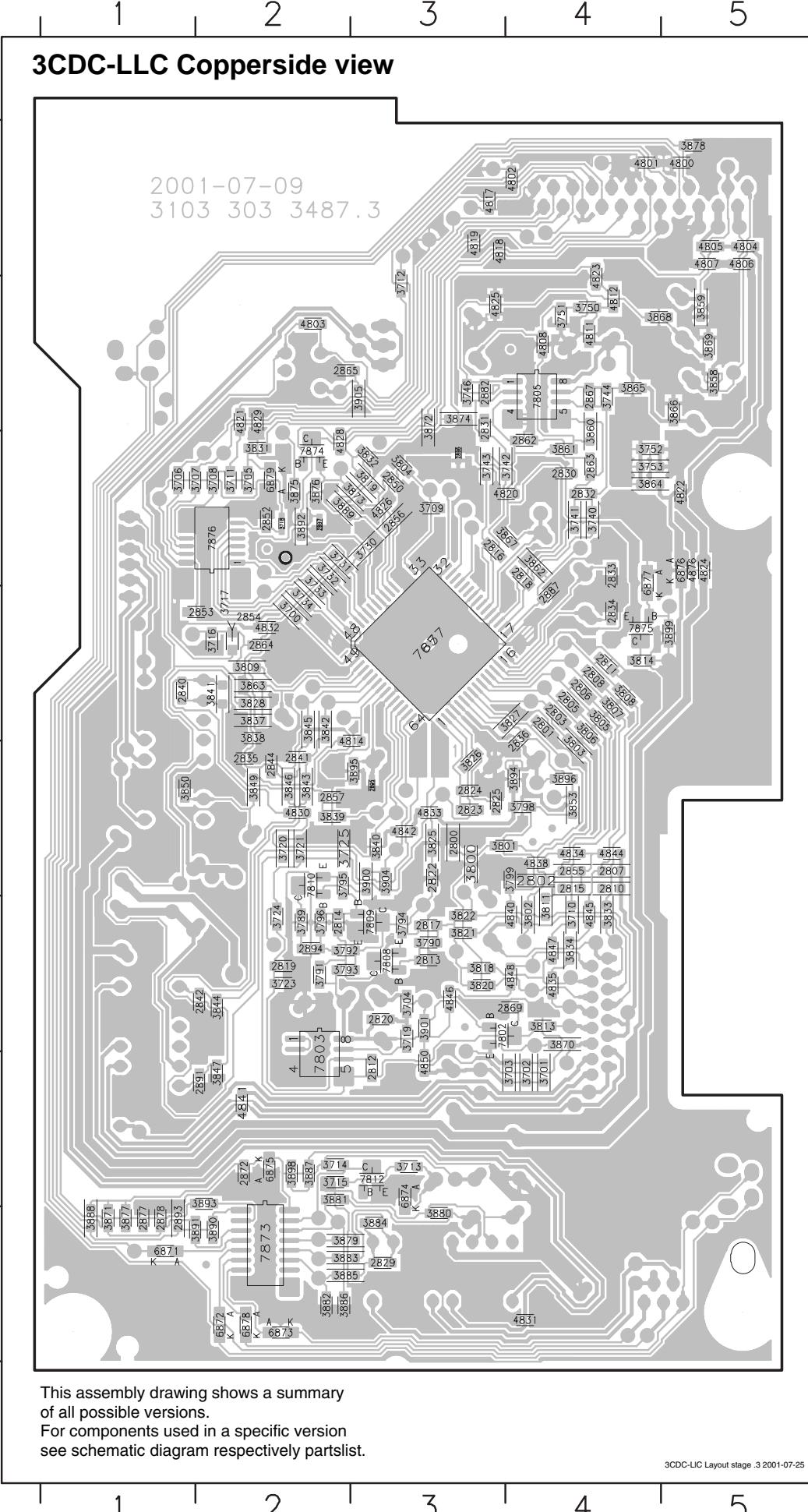
3CDC-LLC Componentside view



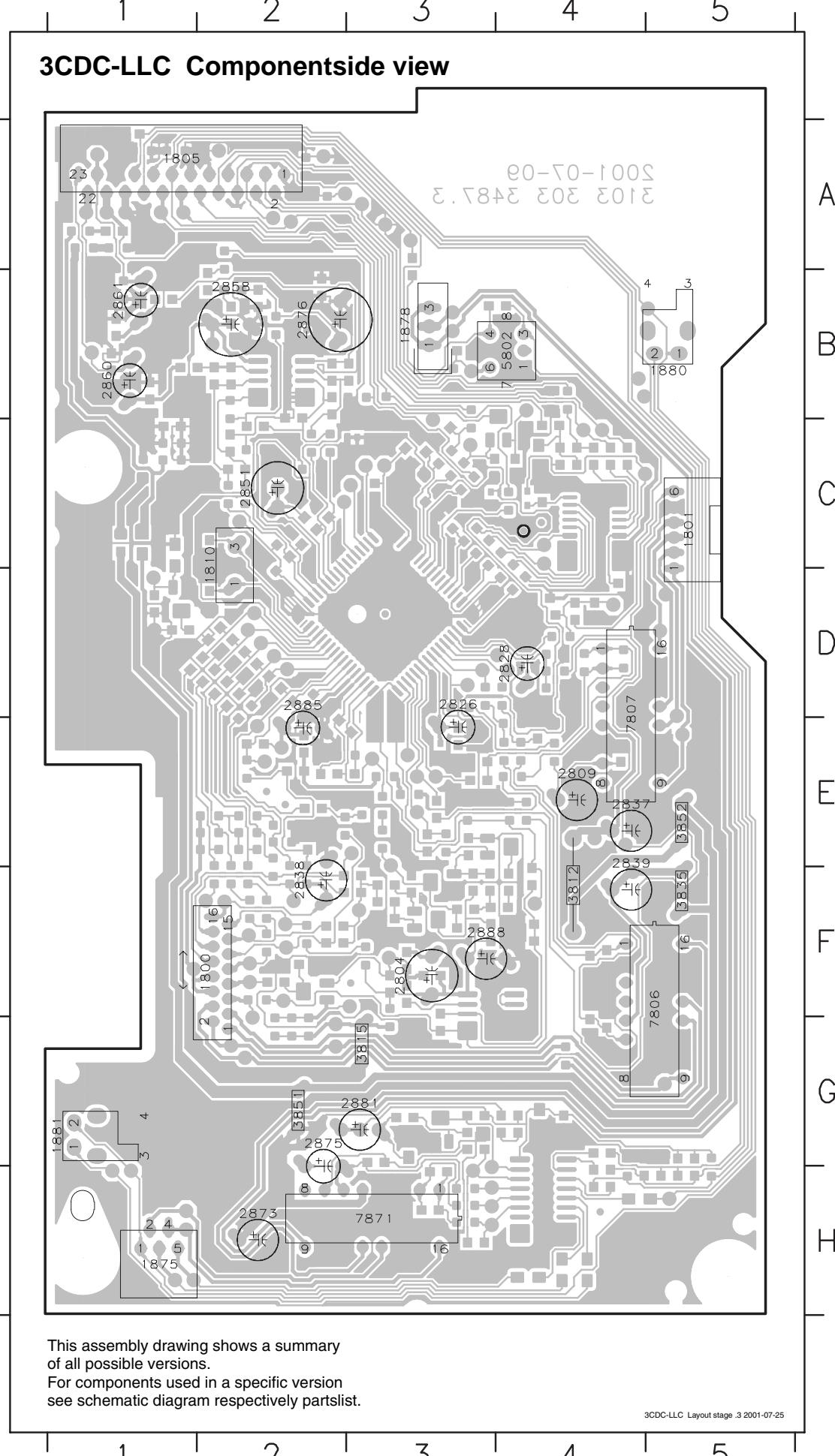
This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

1801 F1	2804 D4	2811 A9	2818 B11	2826 G12	2838 D8	2851 B11	2888 C4	3702 D3	3721 D6	3792 F8	3800 D8	3807 B9	3819 D14	3828 G11	3839 H6	3846 F5	3863 G13	3895 G12	7803-B D5	MP713 C9	MP743 D2	MP813 B3	MP820 F8	MP837 D4	MP844 E9	MP851 E2	MP873 H4	MP884 C5
1801 G1	2805 C8	2812 D5	2819 E5	2828 G13	2839 F4	2855 C8	2891 F4	3703 D3	3723 E6	3793 E8	3801 D8	3808 A9	3820 C3	3832 C15	3840 G5	3847 F5	3867 A11	3896 E9	7806 G3	MP715 D9	MP744 C2	MP814 G2	MP821 C15	MP838 G6	MP845 F4	MP852 G2	MP875 F13	MP893 F10
1810 B10	2806 B8	2813 F7	2820 D4	2833 B10	2840 G4	2856 D15	2894 F8	3704 D4	3724 D6	3794 F7	3802 C8	3811 C8	3821 B3	3833 A8	3841 G5	3849 H5	3870 E2	3900 F9	7807 H3	MP716 B9	MP745 E2	MP815 B3	MP827 B10	MP839 G6	MP846 H2	MP853 G2	MP876 E2	
2800 D8	2807 B8	2814 F7	2822 F9	2834 B10	2841 F5	2857 H5	2895 G12	3709 C14	3725 D6	3795 F8	3803 C8	3812 H4	3822 B3	3834 B8	3842 E6	3850 H5	3873 D14	3901 D4	7808 F7	MP717 A9	MP800 E2	MP816 A3	MP828 G11	MP840 E6	MP847 H2	MP858 G8	MP877 E3	
2801 D8	2809 B9	2815 B8	2823 F10	2835 H7	2842 E5	2869 D3	2896 H12	3710 B8	3789 F8	3796 F8	3804 C14	3813 E2	3825 F9	3835 F5	3843 E5	3852 H5	3889 D15	3904 G10	7809 G8	MP729 B9	MP802 B15	MP817 A3	MP829 A3	MP841 F6	MP848 E2	MP859 E10	MP878 B13	
2802 C8	2809 H4	2816 B12	2824 F10	2836 E10	2844 F5	2885 E9	2897 H12	3719 D4	3790 F7	3798 D8	3805 B8	3815 C4	3826 F9	3837 G7	3844 E5	3853 E9	3892 E15	7802 D3	7810 F9	MP730 C9	MP809 D10	MP818 C4	MP831 A4	MP842 H6	MP849 E2	MP860 C2	MP879 B11	
2803 C8	2810 A8	2817 F7	2825 E9	2837 H4	2850 C14	2887 B10	3701 D3	3720 D5	3791 E7	3799 D8	3806 C8	3818 B3	3827 E10	3838 H7	3845 F6	3862 A10	3894 E9	7803-A B5	7877 D12	MP731 B13	MP819 F10	MP836 D3	MP843 G7	MP850 E2	MP862 C15	MP872 C15	MP883 C4	

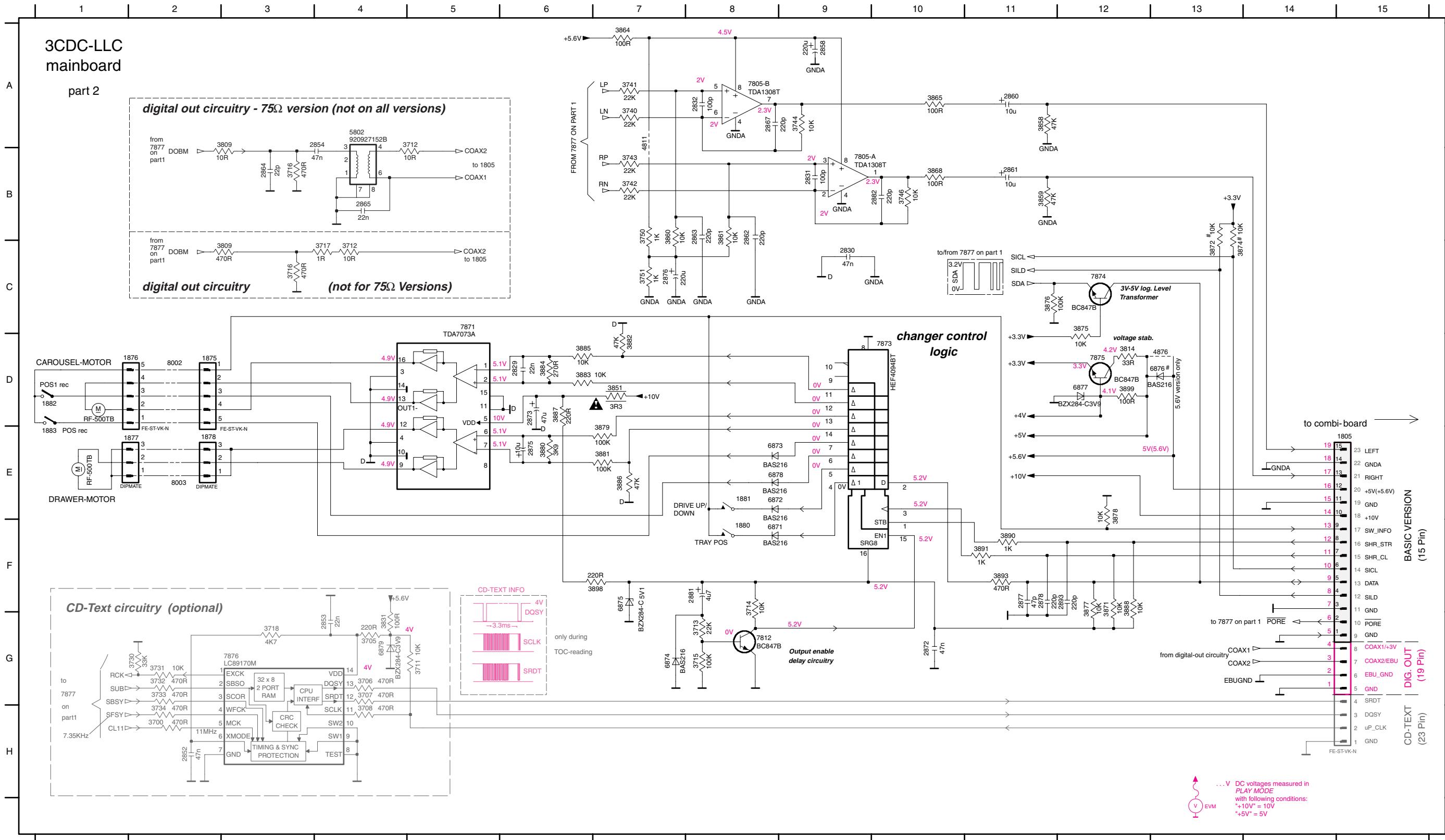


**Mapping**

Copperside	Componentside
2800 E3	3741 C4
2801 D4	3742 C4
2802 E4	3743 C3
2803 D4	3744 B4
2805 D4	3746 B3
2806 D4	3750 B4
2807 E4	3751 B4
2808 D4	3752 C4
2810 E4	3753 C4
2811 D4	3789 F2
2812 G3	3790 F3
2813 F3	3791 F3
2814 F2	3792 F3
2815 E4	3793 F3
2816 C3	3794 F3
2817 F3	3795 E2
2818 C4	3796 F2
2819 F2	3798 E4
2820 F3	3799 E4
2822 E3	3800 E3
2823 E3	3801 E4
2824 E3	3802 F4
2825 E3	3803 D4
2829 H3	3804 C3
2830 C4	3805 D4
2831 B3	3806 D4
2832 C4	3807 A3
2833 C4	3808 D4
2834 D4	3809 D2
2835 E2	3811 F4
2836 D4	3813 F4
2840 D1	3814 D4
2841 E2	3818 F3
2842 F2	3819 C3
2844 E2	3820 F3
2850 C3	3821 F3
2852 C2	3822 F3
2853 D2	3825 E3
2854 D2	3826 E3
2855 E4	3827 D4
2856 C3	3828 D2
2857 E2	3831 C2
2862 C4	3832 C3
2863 C4	3833 F4
2864 D2	3834 F4
2865 B3	3837 D2
2867 B4	3838 D2
2869 F4	3839 E2
2872 G2	3840 E3
2877 H1	3841 D2
2878 H1	3842 D2
2882 B3	3843 E2
2887 C4	3844 F4
2891 G2	3845 D2
2893 H1	3846 E2
2894 F2	3847 G2
2895 E3	3849 E2
2896 C3	3850 E1
2897 C2	3853 E4
3700 D2	3858 B5
3701 G4	3859 B5
3702 G4	3860 B4
3703 G4	3861 C4
3704 F4	3862 C4
3705 C2	3863 D2
3706 C1	3864 C4
3707 C2	3865 B4
3708 C2	3866 B5
3709 C3	3867 C4
3710 F4	3868 B5
3711 C2	3869 B5
3712 A3	3870 F4
3713 G3	3871 H1
3714 G3	3872 B3
3715 G3	3873 C3
3716 D2	3874 B3
3717 D2	3875 C2
3718 C2	3876 C2
3719 F3	3877 D3
3720 E2	3878 A5
3721 E2	3879 H3
3723 F2	3880 G3
3724 F2	3881 G2
3725 E2	3882 H2
3730 C3	3883 H3
3731 C2	3884 H3
3732 C2	3885 H3
3733 C2	3886 H2
3734 D2	3887 G2
3740 C4	3888 H1

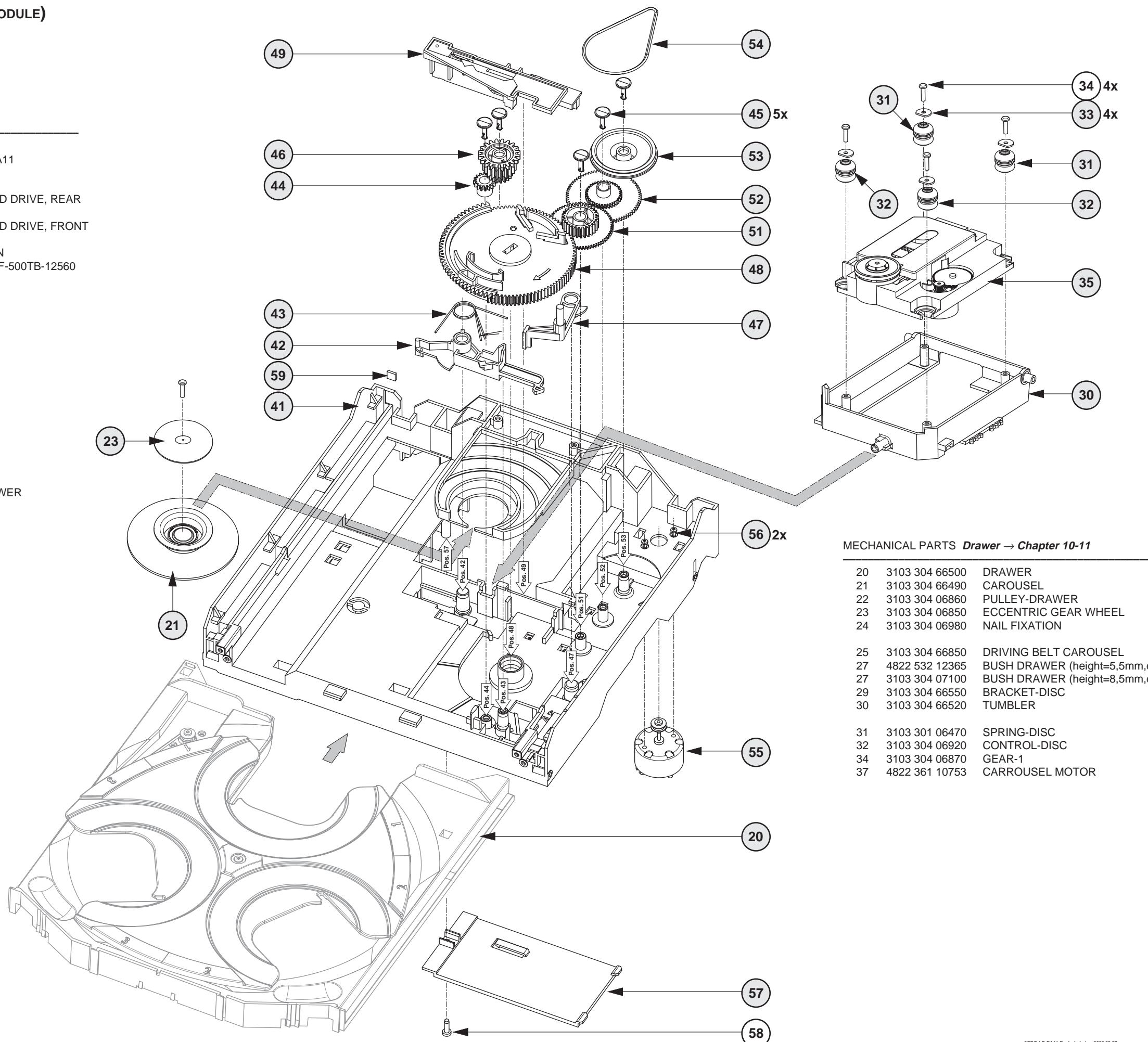


1805 E15	2830 C9	2858 A9	2865 C4	2877 F11	3705 G4	3713 G8	3730 G2	3741 A7	3751 C7	3851 D7	3865 A10	3874 C13	3880 E6	3886 E7	3898 F7	4876 D13	6875 F7	7805-B A8	7876 G3	MP726 D8	MP804 G14	MP811 F14	MP832 G9	MP863 C11	MP871 D6	MP888 G5	MP898 E13
1875 D2	2831 B9	2860 A11	2867 A8	2878 F11	3706 G4	3714 F8	3732 B7	3752 A6	3858 A11	3866 A10	3875 C12	3881 E7	3887 D6	3899 D12	5802 B4	6876 D13	7812 G8	MP721 C8	MP822 E3	MP833 F14	MP865 D11	MP889 G5	MP899 E14				
1878 E2	2832 A8	2861 B11	2872 G10	2881 F8	3707 G4	3715 G8	3732 G2	3743 B7	3753 A6	3868 B10	3876 C11	3882 D7	3888 F12	3905 C5	6871 F8	6877 D12	7871 C5	MP722 E8	MP741 G14	MP806 F13	MP823 E3	MP835 F14	MP866 E8	MP881 G2	MP890 B3		
1880 F8	2852 H2	2862 B8	2873 D6	2882 B10	3708 H4	3716 B3	3733 G2	3744 A9	3809 B2	3860 B7	3869 B10	3877 F12	3889 F11	4803 B4	6872 E8	6878 E8	7873 D10	MP723 D8	MP742 G14	MP807 F14	MP824 D4	MP854 A13	MP867 E8	MP882 G2	MP891 B5		
1881 E8	2853 G4	2863 B8	2875 E6	2893 F12	3711 G5	3717 B3	3734 H2	3746 B10	3814 D12	3861 B8	3871 F12	3878 E12	3884 D6	3891 F11	4811 A7	6873 E8	6879 G4	7874 C12	MP724 D8	MP801 E12	MP825 D4	MP856 E14	MP868 F8	MP886 G3	MP892 B5		
2829 D6	2854 B3	2864 B3	2876 C7	3700 H2	3712 B4	3718 G3	3740 A7	3750 B7	3831 G4	3864 A7	3872 C13	3879 D7	3885 D6	3893 F11	4812 B7	6874 G7	7805-A B9	7875 D12	MP725 D8	MP803 F10	MP810 F13	MP830 A7	MP857 B13	MP869 C12	MP887 H5	MP897 E13	



EXPLODED VIEW (3CDC-LC MODULE)MECHANICAL PARTS *Loader* → *this page*

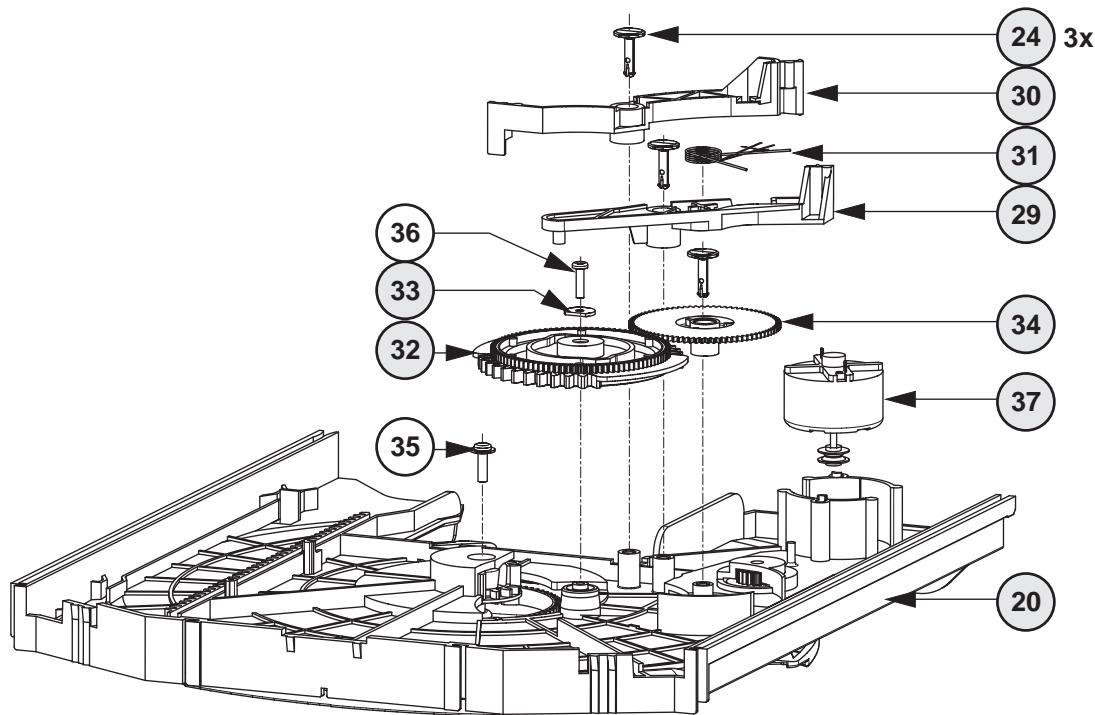
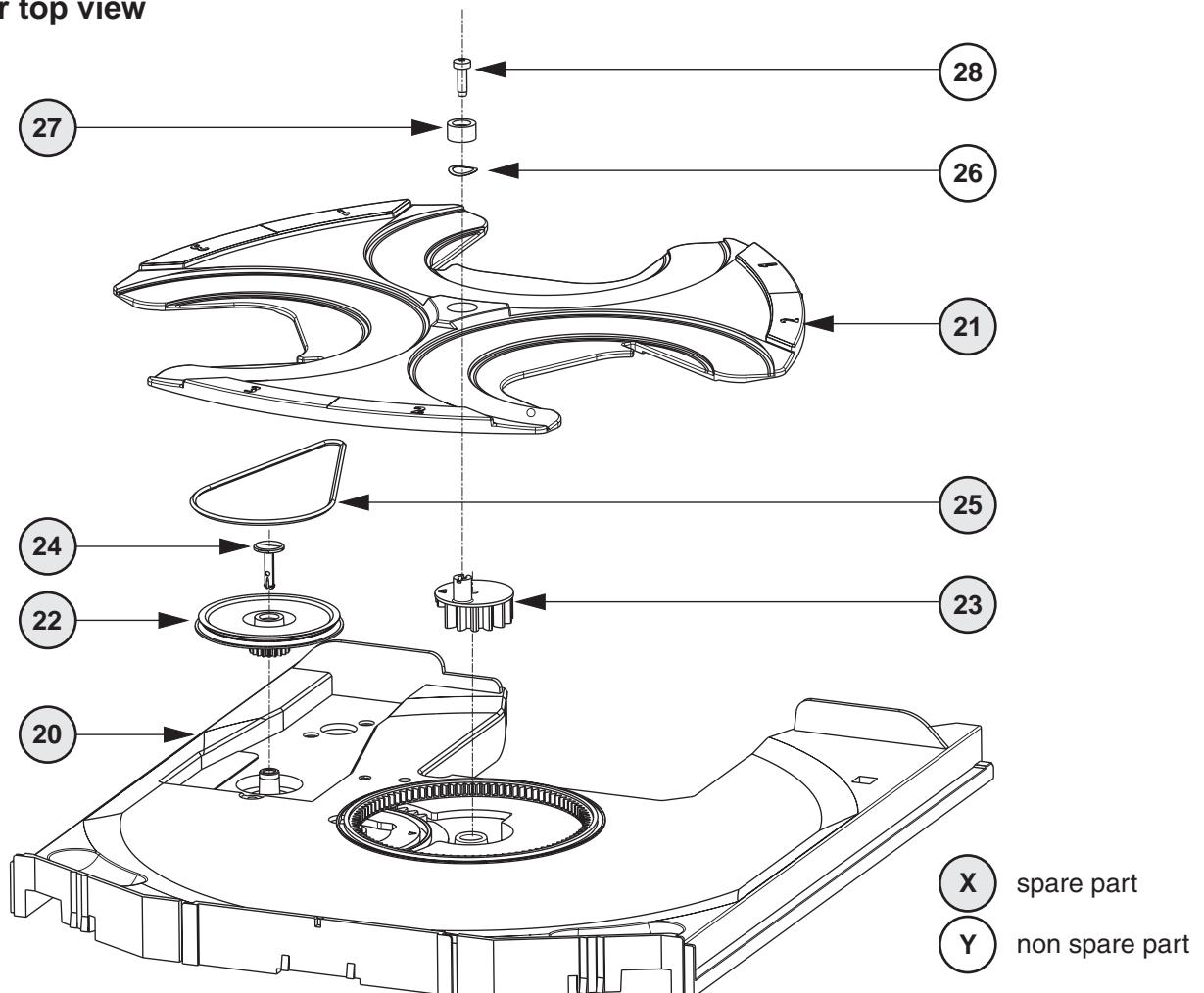
20	3103 304 66500	DRAWER
21	3140 114 29070	PRESSURE RING-DA11
23	3140 111 21270	METAL RING-DA11
30	3103 304 66560	SUPPORT
31	4822 529 10386	RUBBER DAMPER CD DRIVE, REAR
32	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT
33	3103 304 06970	WASHER
35	3103 309 05310	CD DRIVE DA11T3CN
36	3104 119 40010	MOTOR MABUCHI RF-500TB-12560
37	4822 361 10753	CAROUSEL MOTOR
41	3103 304 66480	FRAME
42	3103 304 66540	BRACKET-GUIDING
43	3103 301 06460	SPRING-GUIDING
44	3103 304 06890	GEAR-3
45	3103 304 06980	NAIL FIXATION
46	3103 304 06880	GEAR-2
47	3103 304 66530	BRACKET-LOAD
48	3103 304 06910	CAM
49	3103 304 66510	GUIDING
51	3103 304 06900	GEAR-4
52	3103 304 06870	GEAR-1
53	3103 304 06960	PULLEY-FRAME
54	3103 304 66910	DRIVING-BELT-DRAWER
55	4822 361 10753	TRAY MOTOR
56	4822 502 12548	SCREW M2,6X3,5
57	3103 304 69880	COVER-DA11
59	4822 466 12146	RUBBER

MECHANICAL PARTS *Drawer* → *Chapter 10-11*

20	3103 304 66500	DRAWER
21	3103 304 66490	CAROUSEL
22	3103 304 06860	PULLEY-DRAWER
23	3103 304 06850	ECCENTRIC GEAR WHEEL
24	3103 304 06980	NAIL FIXATION
25	3103 304 66850	DRIVING BELT CAROUSEL
27	4822 532 12365	BUSH DRAWER (height=5,5mm,d=9,4mm)
27	3103 304 07100	BUSH DRAWER (height=8,5mm,d=16mm)
29	3103 304 66550	BRACKET-DISC
30	3103 304 66520	TUMBLER
31	3103 301 06470	SPRING-DISC
32	3103 304 06920	CONTROL-DISC
34	3103 304 06870	GEAR-1
37	4822 361 10753	CAROUSEL MOTOR

X spare part

Y non spare part

Drawer bottom view**Drawer top view**

ELECTRICAL PARTS LIST 3CDC-LLC-DA11 MODULE

MISCELLANEOUS				CAPACITORS				
35	3103 309 05310	CD DRIVE DA11T3CN		2861	4822 124 11947	10µF	20%	16V
37	4822 361 10753	CAROUSEL MOTOR		2862©	4822 126 13883	220pF	5%	50V
55	4822 361 10753	TRAY MOTOR		2863©	4822 126 13883	220pF	5%	50V
1800	2422 025 17389	FLEX FOIL CONNECTOR 16Pin		2865©	4822 126 14494	22nF	10%	25V
1805	4822 265 10979	FLEX FOIL CONNECTOR 15Pin		2867©	4822 126 13883	220pF	5%	50V
1805	4822 265 11545	FLEX FOIL CONNECTOR 19Pin		2872©	3198 024 44730	47nF	5%	50V
1875	4822 267 10958	FLEX FOIL CONNECTOR 5Pin		2873	4822 124 80231	47µF	20%	16V
1876	2422 025 08332	FLEX FOIL CONNECTOR 5Pin		2875	4822 124 11947	10µF	20%	16V
1880	4822 276 13503	SWITCH, Tray switch		2876	4822 124 12245	220µF	20%	16V
1881	4822 276 13503	SWITCH, Drive UP/DOWN		2877©	4822 122 33777	47pF	5%	63V
1882	4822 276 13503	SWITCH, CD Pos.1 recognized		2878©	4822 126 13883	220pF	5%	50V
1883	4822 276 13503	SWITCH, valid CD Play position		2881	4822 124 40769	4,7µF	20%	100V
8002	3103 308 91990	FLEX FOIL CABLE 5P 200mm 1:n		2882©	4822 126 13883	220pF	5%	50V
8005	3103 308 92930	FLEX FOIL CABLE 16P 170mm 1:n		2885	4822 124 40769	4,7µF	20%	100V
				2887©	4822 126 14585	100nF	10%	50V
CAPACITORS				2888	4822 124 80231	47µF	20%	16V
2800©	4822 126 10326	180pF	5%	2891©	4822 126 14247	1,5nF	10%	50V
2801©	4822 126 13883	220pF	5%	2893©	4822 122 33575	220pF	5%	50V
2802©	4822 126 10326	180pF	5%	2894©	3198 017 44740	470nF	20%	10V
2803©	4822 126 13883	220pF	5%	2895©	4822 126 14305	100nF	10%	16V
2804	4822 124 41751	47µF	20%	2896©	4822 126 14305	100nF	10%	16V
2805©	4822 126 13883	220pF	5%	2897©	4822 126 14305	100nF	10%	16V
2806©	4822 126 13883	220pF	5%					
2807©	4822 126 10326	180pF	5%					
2808©	4822 126 13883	220pF	5%					
2809	4822 124 40746	0,22µF	20%					
2810©	5322 122 32531	100pF	5%					
2811©	4822 126 13883	220pF	5%					
2812©	2222 867 15339	33pF	5%					
2813©	4822 126 14226	82pF						
2814©	2238 780 59861	680nF	10%					
2815©	4822 126 10326	180pF	5%					
2816©	4822 126 14247	1,5nF	10%					
2817©	4822 126 14249	560pF	10%					
2818©	4822 126 13344	1,5nF	5%					
2819©	5322 126 11578	1nF	10%					
2820©	4822 126 14305	100nF	10%					
2822©	4822 122 33127	2,2nF	10%					
2823©	4822 122 33777	47pF	5%					
2824©	4822 126 13751	47nF	10%					
2825©	5322 126 11582	6,8nF	10%					
2826	4822 124 12362	47µF	20%					
2828	4822 124 12362	47µF	20%					
2829©	3198 017 42230	22nF	10%					
2830©	4822 126 13751	47nF	10%					
2831©	4822 122 31765	100pF	5%					
2832©	4822 122 31765	100pF	5%					
2835©	3198 024 44730	47nF	5%					
2836©	3198 024 44730	47nF	5%					
2837	4822 124 40433	47µF	20%					
2838	4822 124 40248	10µF	20%					
2839	4822 124 40433	47µF	20%					
2840©	4822 126 14585	100nF	10%					
2841©	5322 126 10511	1nF	5%					
2842©	4822 126 14247	1,5nF	10%					
2844©	3198 016 31020	1nF	5%					
2850©	5322 126 11578	1nF	10%					
2851	4822 124 42383	220µF	20%					
2855©	4822 126 10326	180pF	5%					
2856©	4822 126 13691	27pF	1%					
2857©	5322 126 11583	10nF	10%					
2858	4822 124 12245	220µF	20%					
2860	4822 124 11947	10µF	20%					

ELECTRICAL PARTSLIST 3CDC-LLC-DA11 MODULE

RESISTORS				RESISTORS			
3803© 4822 117 10833	10kΩ	1%	0,1W	3883© 4822 117 10833	10kΩ	1%	0,1W
3804© 4822 051 30103	10kΩ	5%	0,06W	3884© 4822 051 30271	270Ω	5%	0,06W
3805© 4822 051 30103	10kΩ	5%	0,06W	3885© 4822 117 10833	10kΩ	1%	0,1W
3806© 4822 051 30103	10kΩ	5%	0,06W	3886© 4822 117 12925	47kΩ	1%	0,06W
3807© 4822 051 30103	10kΩ	5%	0,06W	3887© 4822 051 30221	220Ω	5%	0,06W
3808© 4822 051 30103	10kΩ	5%	0,06W	3888© 4822 117 10833	10kΩ	1%	0,1W
3809© 4822 051 20471	470Ω	5%	0,1W	3889© 4822 051 20471	470Ω	5%	0,1W
3811© 4822 117 11148	56kΩ	1%	0,1W	3890© 4822 051 30102	1kΩ	5%	0,06W
3812 4822 053 10228	2,2Ω	5%	1W	3891© 4822 051 30102	1kΩ	5%	0,06W
3813© 4822 117 13608	4,7Ω	5%	0,06W	3892© 4822 051 20471	470Ω	5%	0,1W
3814© 4822 051 30339	33Ω	5%	0,06W	3893© 4822 051 30471	470Ω	5%	0,06W
3815 4822 052 10478	4,7Ω	5%	NFR	3894© 4822 051 30101	100Ω	5%	0,06W
3818© 4822 051 30222	2,2kΩ	5%	0,06W	3895© 4822 117 12971	15Ω	5%	0,06W
3819© 4822 051 20471	470Ω	5%	0,1W	3898© 4822 051 30221	220Ω	5%	0,06W
3820© 4822 051 30222	2,2kΩ	5%	0,06W	3899© 4822 051 30101	100Ω	5%	0,06W
3821© 4822 051 30222	2,2kΩ	5%	0,06W	3900© 4822 117 12955	2,7kΩ	1%	0,1W
3822© 4822 051 30222	2,2kΩ	5%	0,06W	3901© 4822 117 10833	10kΩ	1%	0,1W
3825© 4822 051 10102	1kΩ	2%	0,25W	3904© 4822 117 13632	100kΩ	1%	0,06W
3826© 4822 051 30223	22kΩ	5%	0,06W	4800© 4822 051 20008	CHIP JUMPER 0805		
3827© 4822 051 20273	27kΩ	5%	0,1W	4801© 4822 051 20008	CHIP JUMPER 0805		
3828© 4822 051 20223	22kΩ	5%	0,1W	4802© 4822 051 20008	CHIP JUMPER 0805		
3831© 4822 051 30101	100Ω	5%	0,06W	4803© 4822 051 30008	CHIP JUMPER 0603		
3832© 4822 051 30103	10kΩ	5%	0,06W	4804© 4822 051 20008	CHIP JUMPER 0805		
3833© 4822 051 20393	39kΩ	5%	0,1W	4805© 4822 051 30008	CHIP JUMPER 0603		
3834© 4822 051 20393	39kΩ	5%	0,1W	4806© 4822 051 20008	CHIP JUMPER 0805		
3835 4822 052 10478	4,7Ω	5%	NFR	4807© 4822 051 20008	CHIP JUMPER 0805		
3837© 4822 051 10102	1kΩ	2%	0,25W	4808© 4822 051 20008	CHIP JUMPER 0805		
3838© 4822 051 30102	1kΩ	5%	0,06W	4811© 4822 051 20008	CHIP JUMPER 0805		
3839© 4822 051 20124	120kΩ	5%	0,1W	4814© 4822 051 20008	CHIP JUMPER 0805		
3840© 4822 051 30124	120kΩ	5%	0,06W	4817© 4822 051 20008	CHIP JUMPER 0805		
3841© 4822 117 10833	10kΩ	1%	0,1W	4818© 4822 051 20008	CHIP JUMPER 0805		
3842© 4822 117 10833	10kΩ	1%	0,1W	4819© 4822 051 20008	CHIP JUMPER 0805		
3843© 4822 117 10834	47kΩ	1%	0,1W	4820© 4822 051 20008	CHIP JUMPER 0805		
3844© 4822 051 30332	3,3kΩ	5%	0,06W	4821© 4822 051 20008	CHIP JUMPER 0805		
3845© 4822 117 10833	10kΩ	1%	0,1W	4822© 4822 051 20008	CHIP JUMPER 0805		
3846© 4822 117 10834	47kΩ	1%	0,1W	4823© 4822 051 20008	CHIP JUMPER 0805		
3847© 4822 051 30472	4,7kΩ	5%	0,06W	4824© 4822 051 30008	CHIP JUMPER 0603		
3849© 4822 051 20334	330kΩ	5%	0,1W	4825© 4822 051 30008	CHIP JUMPER 0603		
3850© 4822 051 30103	10kΩ	5%	0,06W	4826© 4822 051 20008	CHIP JUMPER 0805		
3851 4822 052 10338	3,3Ω	NFR25		4828© 4822 051 20008	CHIP JUMPER 0805		
3852 4822 052 10228	2,2Ω	5%	0,33W	4829© 4822 051 20008	CHIP JUMPER 0805		
3853© 4822 051 20471	470Ω	5%	0,1W	4830© 4822 051 20008	CHIP JUMPER 0805		
3858© 4822 117 12925	47kΩ	1%	0,06W	4831© 4822 051 20008	CHIP JUMPER 0805		
3859© 4822 117 10834	47kΩ	1%	0,1W	4832© 4822 051 20008	CHIP JUMPER 0603		
3860© 4822 117 10833	10kΩ	1%	0,1W	4833© 4822 051 20008	CHIP JUMPER 0805		
3861© 4822 051 30103	10kΩ	5%	0,06W	4834© 4822 051 20008	CHIP JUMPER 0805		
3862© 4822 051 20121	120Ω	5%	0,1W	4835© 4822 051 20008	CHIP JUMPER 0805		
3863© 4822 117 11373	100Ω	1%	0,1W	4838© 4822 051 30008	CHIP JUMPER 0603		
3864© 4822 117 11373	100Ω	1%	0,1W	4840© 4822 051 20008	CHIP JUMPER 0805		
3865© 4822 051 30101	100Ω	5%	0,06W	4841© 4822 051 30008	CHIP JUMPER 0603		
3867© 4822 051 30121	120Ω	5%	0,06W	4842© 4822 051 20008	CHIP JUMPER 0805		
3868© 4822 051 30101	100Ω	5%	0,06W	4844© 4822 051 20008	CHIP JUMPER 0805		
3870© 4822 051 20472	4,7kΩ	5%	0,1W	4845© 4822 051 20008	CHIP JUMPER 0805		
3871© 4822 051 30103	10kΩ	5%	0,06W	4846© 4822 051 20008	CHIP JUMPER 0805		
3873© 4822 051 20471	470Ω	5%	0,1W	4847© 4822 051 20008	CHIP JUMPER 0805		
3875© 4822 051 30103	10kΩ	5%	0,06W	4848© 4822 051 20008	CHIP JUMPER 0805		
3876© 4822 117 13632	100kΩ	1%	0,06W	4850© 4822 051 20008	CHIP JUMPER 0805		
3877© 4822 051 30103	10kΩ	5%	0,06W	4876© 4822 051 20008	CHIP JUMPER 0805		
3878© 4822 051 30103	10kΩ	5%	0,06W				
3879© 4822 117 10837	100kΩ	1%	0,1W				
3880© 4822 051 30392	3,9kΩ	5%	0,06W				
3881© 4822 117 13632	100kΩ	1%	0,06W				
3882© 4822 117 12925	47kΩ	1%	0,06W				

ELECTRICAL PARTSLIST 3CDC-LLC-DA11 MODULE**COILS**

1810 4822 242 73557 CERAMIC RES. 8,46MHz

DIODES

6871© 4822 130 11397 BAS316
 6872© 4822 130 11397 BAS316
 6873© 4822 130 11397 BAS316
 6874© 4822 130 11397 BAS316
 6875© 9340 548 52115 BZX284-C5V1
 6877© 9322 129 34685 BZX284-C3V9
 6878© 4822 130 11397 BAS316
 6879© 9322 129 34685 BZX284-C3V9

TRANSISTORS

7802© 5322 130 60123 BC807-40
 7808© 4822 130 60511 BC847B
 7809© 4822 130 60511 BC847B
 7810© 4822 130 60511 BC847B
 7812© 4822 130 60511 BC847B
 7874© 4822 130 60511 BC847B
 7875© 4822 130 60511 BC847B

INTEGRATED CIRCUITS

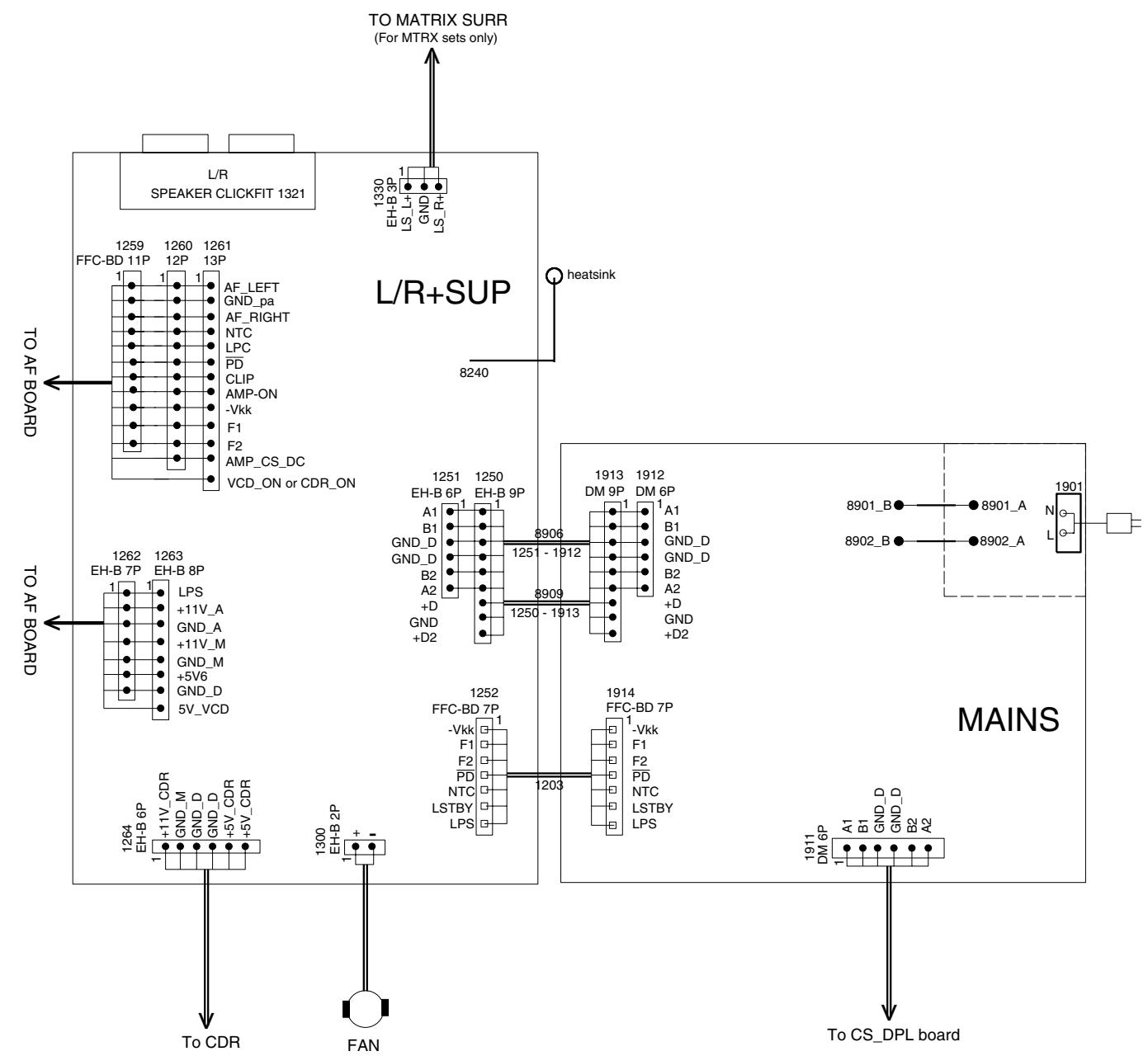
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 7805© 4822 209 33165 TDA1308T/N1
 7806 4822 209 32852 TDA7073A/N2
 7807 4822 209 32852 TDA7073A/N2
 7871 4822 209 32852 TDA7073A/N2
 7873© 5322 209 11306 HEF4094BT, SHIFT REGISTER
 7877© 9352 641 80557 SAA7324H/M2B, "CD10" SIGN.PROC.

P2002 110/135W MODULE

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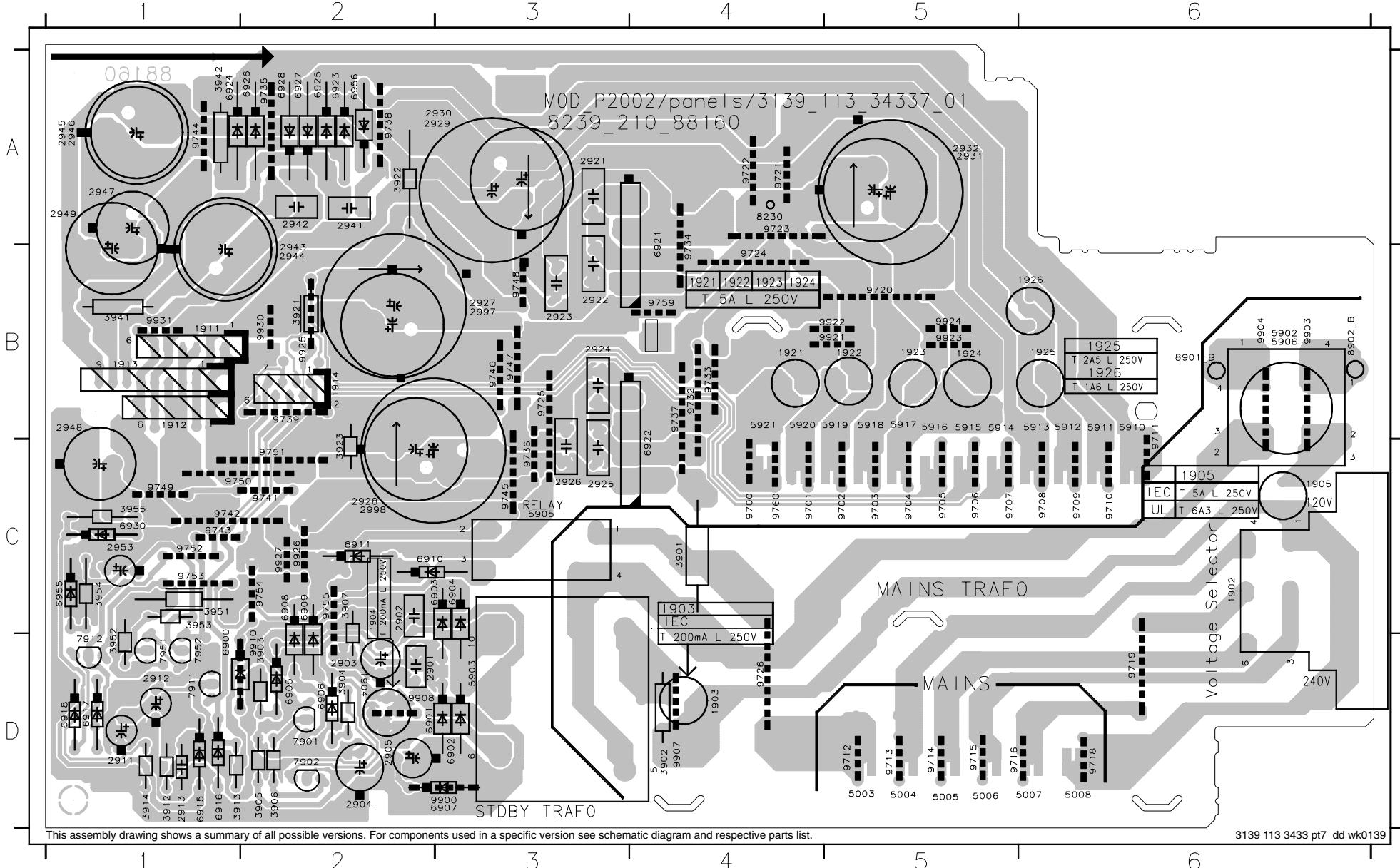
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WIRING DIAGRAM

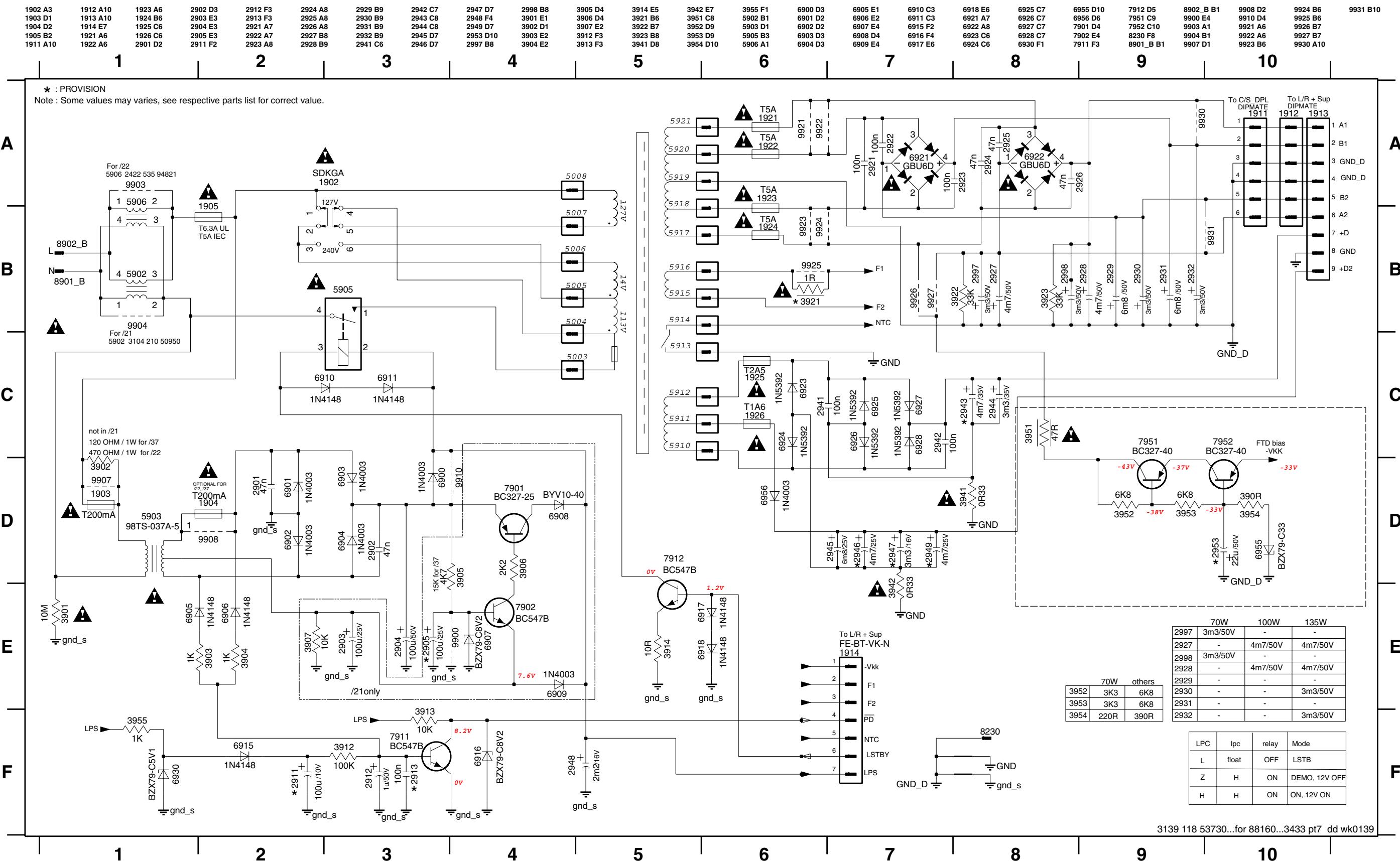


MAINS BOARD - COMPONENT VIEW

1902 C6 1926 B6 2925 C3 2946 A1 3907 C2 3955 C1 5912 B6 6903 C2 6921 C4 7911 D1 9706 C5 9720 B5 9738 A2 9752 C1 9922 B5
 1903 D4 2901 D2 2926 C3 2947 A1 3912 D1 5003 D5 5913 B6 6904 C3 6922 C4 7912 D1 9707 C5 9721 A4 9739 B2 9753 C1 9923 B5
 1904 D2 2902 C2 2927 B3 2948 B1 3913 D1 5004 D5 5914 B5 6905 D2 6923 A2 7951 D1 9708 C6 9722 A4 9741 C2 9754 C2 9924 B5
 1905 C6 2903 D2 2928 C2 2949 A1 3914 D1 5005 D5 5915 B5 6906 D2 6924 A1 7952 D1 9709 C6 9723 A4 9742 C1 9755 C2 9925 B2
 1911 B1 2904 D2 2929 A3 2953 C1 3921 B2 5006 D5 5916 B5 6907 D3 6925 A2 8230 A4 9710 C6 9724 B4 9743 C1 9759 B4 9926 C2
 1912 B1 2905 D2 2930 A3 2954 B3 3922 A2 5007 D6 5917 B5 6908 C2 6926 A2 8901 B6 9711 B6 9725 B3 9744 A1 9900 D3 9930 B2
 1913 B1 2911 D1 2931 A5 2958 C2 3923 C2 5008 D6 5918 B5 6909 C2 6927 A2 8902 B6 9712 D5 9726 D4 9745 C3 9904 B6 9931 B1
 1914 B2 2912 D1 2932 A5 3901 C4 3941 B1 5902 B6 5919 B5 6910 C2 6928 A2 9700 C4 9713 D5 9732 B4 9746 B3 9903 B6
 1921 B4 2913 D1 2941 A2 3902 D4 3942 A1 5903 D3 5920 B4 6911 C2 6930 C1 9701 C4 9714 D5 9733 B4 9747 B3 9907 D4
 1922 B5 2921 A3 2942 A2 3903 D2 3951 C1 5905 C3 5921 B4 6915 D1 6955 C1 9702 C5 9715 D5 9734 B4 9748 B3 9908 D2
 1923 B5 2922 B3 2943 B2 3904 D2 3952 D1 5906 B6 6900 D1 6916 D1 6956 A2 9703 C5 9716 D5 9735 A2 9749 C1 9910 D2
 1924 B5 2923 B3 2944 B2 3905 D2 3953 C1 5910 B6 6901 D2 6917 D1 7901 D2 9704 C5 9718 D6 9736 C3 9750 C1 9912 B5
 1925 B6 2924 B3 2945 A1 3906 D2 3954 C1 5911 B6 6902 D3 6918 D1 7902 D2 9705 C5 9719 D6 9737 B4 9751 C2 9921 B5

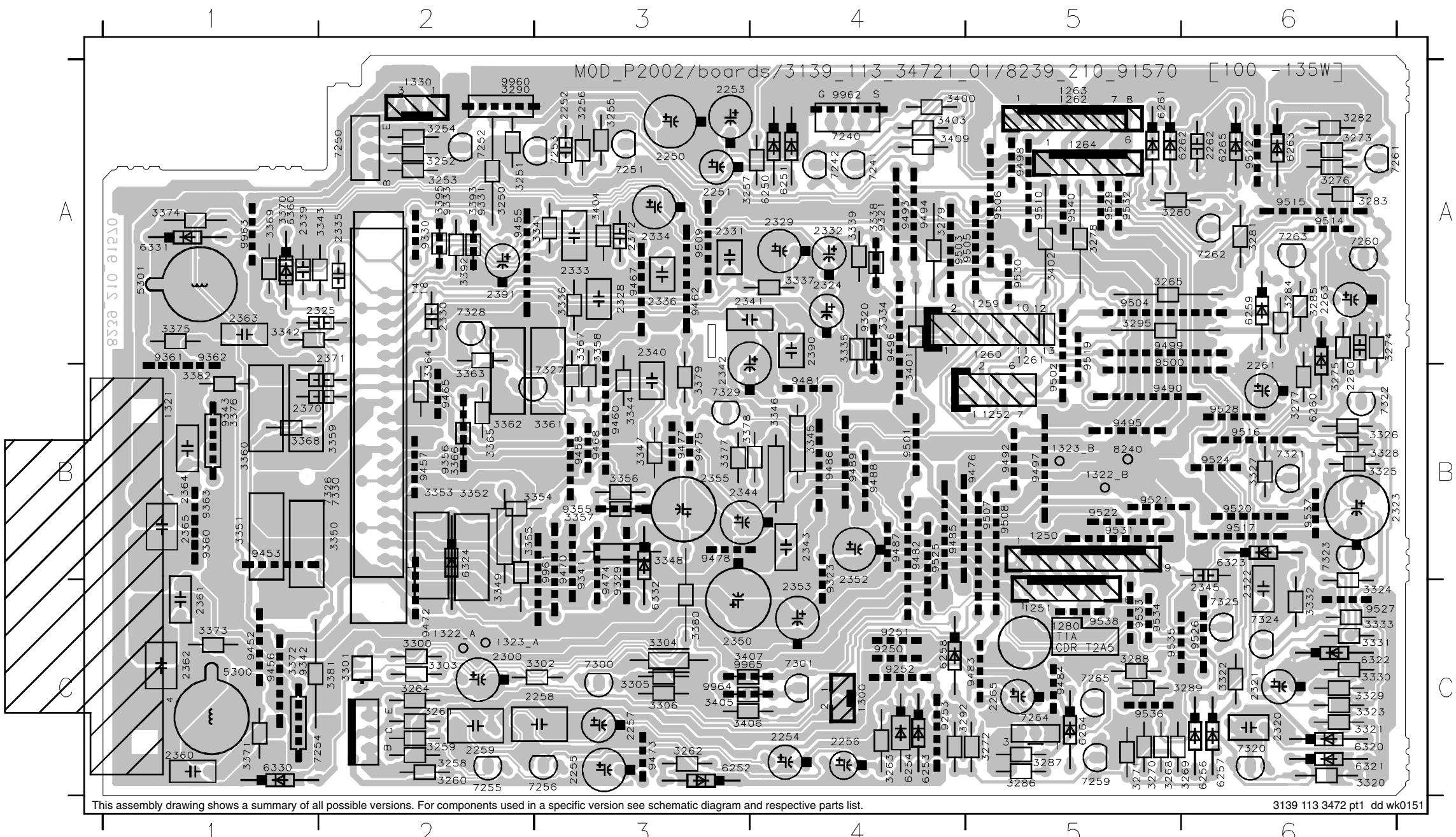


MAINS BOARD - CIRCUIT DIAGRAM

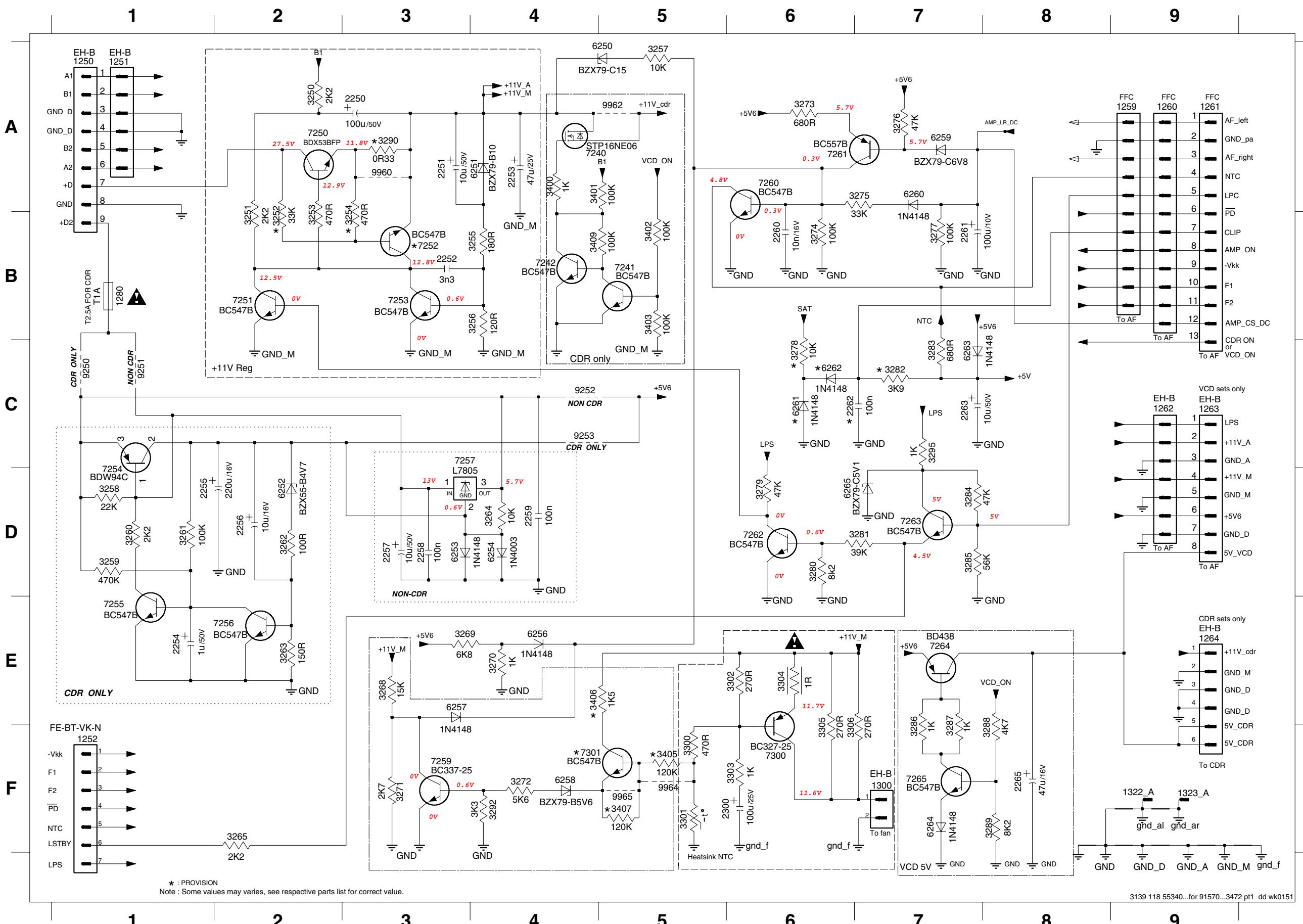


LEFT/RIGHT AMPLIFIER & SUPPLY BOARD - COMPONENT VIEW

1250 B5	2260 B6	2345 C6	3261 C2	3290 A2	3337 A4	3365 B2	3406 C3	6332 C3	7326 B2	9453 B1	9490 B5	9521 B5
1251 C5	2261 B6	2350 C3	3262 C3	3292 C4	3338 A4	3366 B2	3407 C3	6360 A1	7327 B3	9455 A2	9492 B5	9522 B5
1252 B5	2262 A6	2352 B4	3263 C4	3295 A5	3339 A4	3367 A3	3409 A4	7240 A4	7328 A2	9456 C1	9493 A4	9524 B6
1259 A5	2263 A6	2353 C4	3264 C2	3300 C2	3341 A3	3368 B1	5300 C1	7241 A4	7329 B3	9457 B2	9494 A4	9525 B4
1260 A5	2265 C5	2355 B3	3265 A5	3301 C2	3342 A1	3369 A1	5301 A1	7242 A4	7330 B2	9458 B3	9495 B5	9526 C6
1261 A5	2300 C2	2360 C1	3268 C5	3302 C3	3343 A2	3370 A1	6250 A4	7250 A2	8240 B5	9460 B3	9496 A4	9527 C6
1262 A5	2320 C6	2361 C1	3269 C6	3303 C2	3344 B3	3371 C1	6251 A4	7251 A3	9250 C4	9462 A3	9497 B5	9528 B6
1263 A5	2321 C6	2362 C1	3270 C5	3304 C3	3345 B4	3372 C1	6252 C3	7252 A2	9251 C4	9465 B2	9498 A5	9529 A5
1264 A5	2322 C6	2363 A1	3271 C5	3305 C3	3346 B4	3373 C1	6253 C4	7253 A3	9252 C4	9467 A3	9499 A5	9530 A5
1280 C5	2323 B6	2364 B1	3272 C5	3306 C3	3347 B3	3374 A1	6254 C4	7254 C1	9253 C4	9468 B3	9500 A5	9531 B5
1300 C4	2324 A4	2365 B1	3273 A6	3320 C6	3348 B3	3375 A1	6256 C6	7255 C2	9320 A4	9470 B3	9501 B4	9532 A5
1321 B1	2325 A2	2370 B1	3274 A6	3321 C6	3349 C2	3376 B1	6257 C6	7256 C3	9321 A4	9472 C2	9502 B5	9533 C5
1322 A2	2328 A3	2371 A2	3275 B6	3322 C6	3350 B2	3377 B3	6258 C4	7259 C5	9323 C3	9473 C3	9503 A4	9534 C5
1322-B B5	2329 A4	2372 A3	3276 A6	3323 C6	3351 B1	3378 B3	6259 A6	7260 A6	9329 C3	9474 C3	9504 A5	9535 C5
1323-A C2	2330 A2	2390 A4	3277 B6	3324 C6	3352 B2	3379 B3	6260 B6	7261 A6	9330 A2	9475 B3	9505 A5	9536 C5
1323-B B5	2331 A3	2391 A2	3278 A5	3325 B6	3353 B2	3380 C3	6261 A5	7262 A6	9331 A2	9476 B5	9506 A5	9537 B6
1330-A2	2332 A4	3250 A2	3279 A4	3326 B6	3354 B3	3381 C2	6262 A6	7263 A6	9333 A2	9477 B3	9507 B5	9538 C5
2250 A3	2333 A3	3251 A2	3280 A5	3327 B6	3355 B2	3382 B1	6263 A6	7264 C5	9341 B3	9478 B3	9508 B5	9540 A5
2251 A3	2334 A3	3252 A2	3281 A6	3328 B6	3356 B3	3392 A2	6264 C5	7265 C5	9342 C1	9481 B4	9509 A3	9960 A2
2252 A3	2335 A2	3253 A2	3282 A6	3329 C6	3357 B3	3393 A2	6265 A6	7300 C3	9343 B1	9482 B4	9510 A5	9961 B3
2253 A3	2336 A3	3254 A2	3283 A6	3330 C6	3358 A3	3395 A2	6320 C6	7301 C4	9355 B3	9483 C5	9512 A6	9962 A4
2254 C4	2339 A1	3255 A3	3284 A6	3331 C6	3359 B2	3400 A4	6321 C6	7320 C6	9356 B2	9484 C5	9514 A6	9963 A1
2255 C3	2340 A3	3256 A3	3285 A6	3332 C6	3360 B1	3401 B4	6322 C6	7321 B6	9360 B1	9485 B4	9515 A6	9964 C3
2256 C4	2341 A3	3257 A3	3286 C5	3333 C6	3361 B3	3402 A5	6323 B6	7322 B6	9361 A1	9486 B4	9516 B6	9965 C3
2257 C3	2342 B3	3258 C2	3287 C5	3334 A4	3362 B2	3403 A4	6324 B2	7323 B6	9362 A1	9487 B4	9517 B6	
2258 C3	2343 B4	3259 C2	3288 C5	3335 A4	3363 B2	3404 A3	6330 C1	7324 C6	9363 B1	9488 B4	9519 A5	
2259 C2	2344 B3	3260 C2	3289 C6	3336 A3	3364 B2	3405 C3	6331 A1	7325 C6	9452 C1	9489 B4	9520 B6	



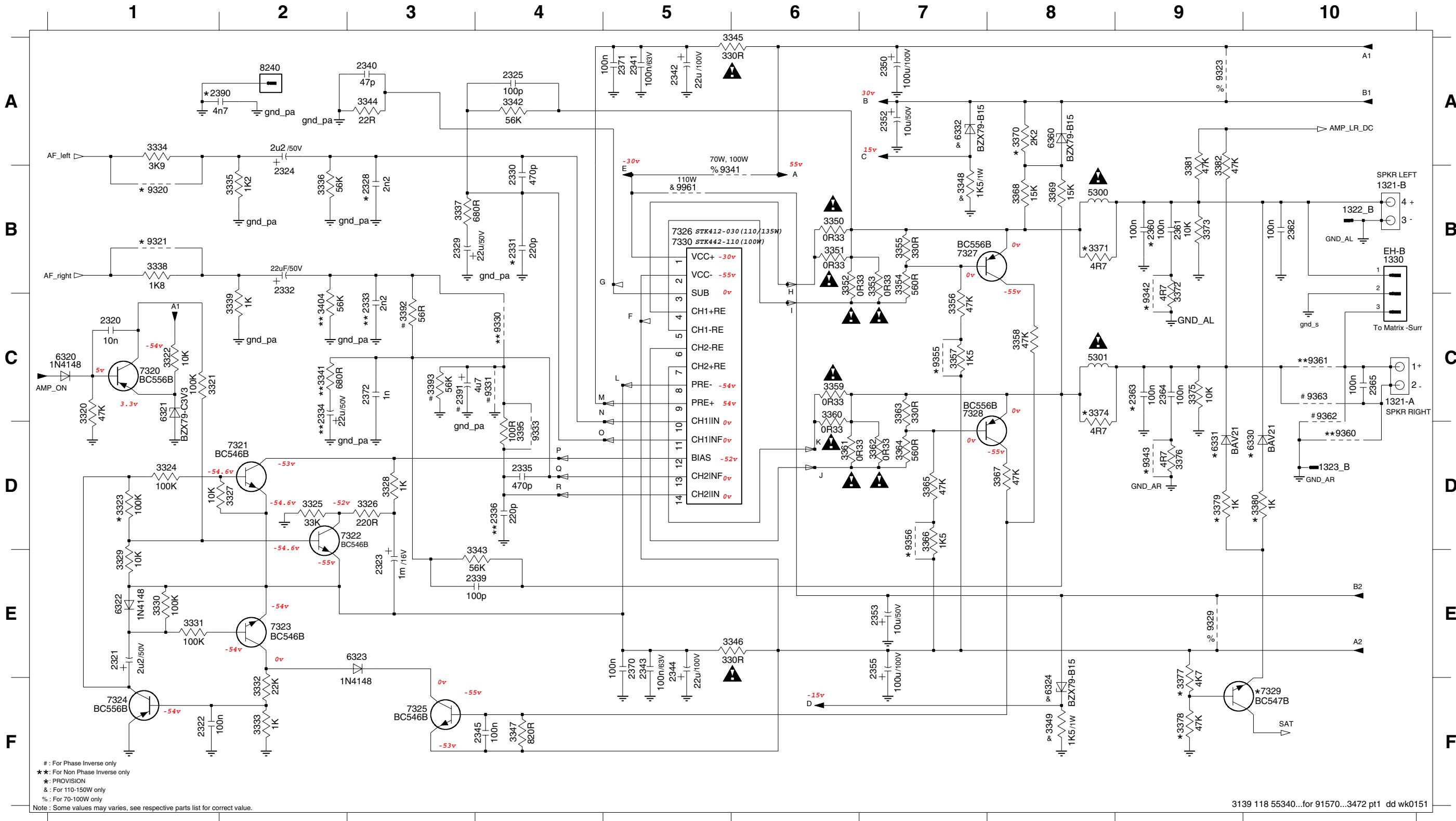
LEFT/RIGHT AMPLIFIER & SUPPLY BOARD - CIRCUIT DIAGRAM (PART 1)

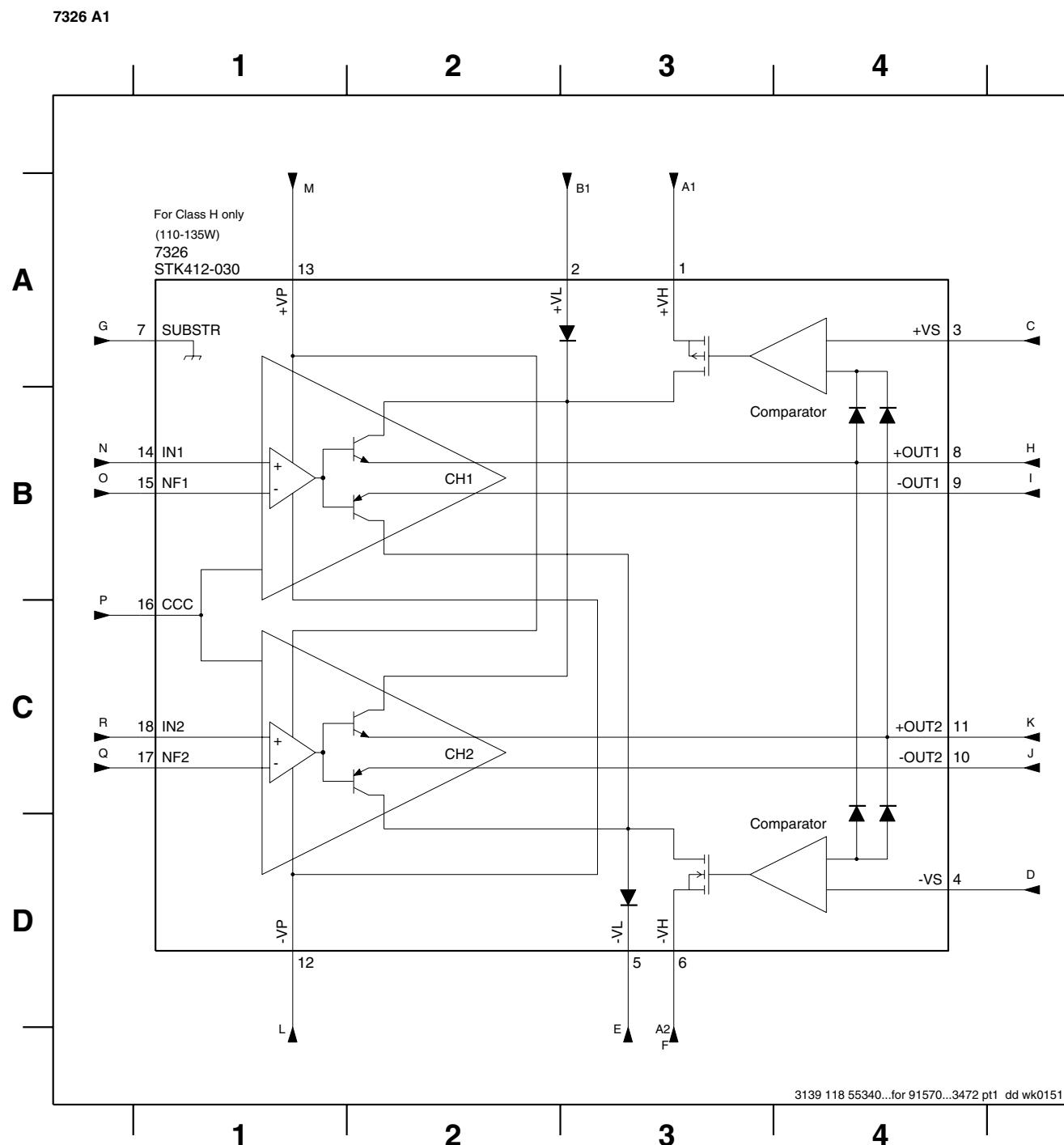


1250 A1	7242 B4
1251 A1	7250 A2
1252 F1	7251 B2
1259 A9	7252 B3
1260 A9	7253 B3
1261 A9	7254 C1
1262 C9	7255 E1
1263 C9	7256 E1
1264 E9	7257 C3
1280 B1	7259 F3
1300 F7	7260 A6
1322_A F9	7261 A6
1323_A F9	7262 D6
2250 A3	7263 D7
2251 A3	7264 E7
2252 B3	7265 F7
2253 A4	7300 F6
2254 E1	7301 F4
2255 D1	9250 C1
2256 D2	9251 C1
2257 D3	9252 C4
2258 D3	9253 C4
2259 D4	9960 A3
2260 B6	9962 A5
2261 B7	9964 F5
2262 C6	9965 F5
2263 C7	
2265 F8	
2300 F6	
3250 A2	
3251 B2	
3252 B2	
3253 B2	
3254 B3	
3255 B3	
3256 B3	
3257 A5	
3258 D1	
3259 D1	
3260 D1	
3261 D1	
3262 D2	
3263 E2	
3264 D4	
3265 F2	
3268 E3	
3269 E3	
3270 E4	
3271 F3	
3272 F4	
3273 A6	
3274 B6	
3275 A7	
3276 A7	
3277 B7	
3278 C6	
3279 D6	
3280 D6	
3281 D7	
3282 C7	
3283 C7	
3284 D7	
3285 D7	
3286 F7	
3287 F7	
3288 F8	
3289 F8	
3290 A3	
3292 F4	
3295 C7	
3300 F5	
3301 F5	
3302 E6	
3303 F6	
3304 E6	
3305 F6	
3306 F6	
3400 A4	
3401 A4	
3402 B5	
3403 B5	
3405 F5	
3406 E4	
3407 F5	
3409 B4	
6250 A5	
6251 A3	
6252 D2	
6253 D3	
6254 D4	
6256 E4	
6257 E3	
6258 F4	
6259 A7	
6260 A7	
6261 C6	
6262 C6	
6263 C7	
6264 F7	
6265 D6	
7240 A4	
7241 B5	

LEFT/RIGHT AMPLIFIER & SUPPLY BOARD - CIRCUIT DIAGRAM (PART 2)

1321-A C10	2322 F1	2331 B4	2340 A3	2352 A7	2364 C9	3320 C1	3327 D2	3334 A1	3342 A4	3349 F8	3356 C7	3363 C7	3370 A8	3377 F9	3393 C3	6322 E1	7320 C1	7328 C7	9329 E9	9355 C7
1321-B B10	2323 E3	2332 B2	2341 A5	2353 E7	2365 C10	3321 C1	3328 D3	3335 B2	3343 E4	3350 B6	3357 C7	3364 D7	3371 B8	3378 F9	3395 D4	6323 E3	7321 D2	7329 F10	9330 C4	9356 D7
1322_B B10	2324 B2	2333 C3	2342 A5	2355 E7	2370 E5	3322 C1	3329 E1	3336 B2	3344 A3	3351 B6	3358 C8	3365 D7	3372 B9	3379 D9	3404 C2	6324 F8	7322 D2	7330 B5	9331 C4	9360 D10
1323_B D10	2325 A4	2334 C2	2343 E5	2360 B9	2371 A5	3323 D1	3330 E1	3337 B3	3345 A6	3352 B6	3359 C6	3366 D7	3373 B9	3380 D10	5300 B8	6330 D10	7323 E1	8240 A2	9333 D4	9361 C10
1330 B10	2328 B3	2335 D4	2344 E5	2361 B9	2372 C3	3324 D1	3331 E1	3338 B1	3346 E6	3353 B7	3360 C6	3367 D8	3374 C8	3381 B9	5301 C8	6331 D9	7324 F1	9320 B1	9341 B5	9362 C10
2320 C1	2329 B3	2336 D4	2345 F4	2362 B10	2390 A2	3325 D2	3332 F2	3339 C2	3347 F4	3354 B7	3361 D6	3368 B8	3375 C9	3382 B9	6320 C1	6332 A7	7325 F3	9321 B1	9342 B9	9363 C10
2321 E1	2330 B4	2339 E4	2350 A7	2363 C9	2391 C3	3326 D3	3333 F2	3341 C2	3348 B7	3355 B7	3362 D7	3369 B8	3376 D9	3392 C3	6321 C1	6360 A8	7327 B7	9323 A9	9343 D9	9961 B5



LEFT/RIGHT AMPLIFIER & SUPPLY BOARD - CIRCUIT DIAGRAM (PART 3)

ELECTRICAL PARTS LIST - LEFT/RIGHT AMPLIFIER & SUPPLY BOARD**MISCELLANEOUS**

0028	3139 114 73910	Holder STK PWR2002 150W
1252	4822 267 10953	Flex Connector 7P
1259	4822 267 11039	Flex Connector 11P
1280	4822 071 51002	△ Fuse T1A
1321	4822 267 31176	L/R Speaker Terminal

CAPACITORS

2250	4822 124 40255	100uF 20% 63V
2251	4822 124 40248	10uF 20% 63V
2252	4822 122 10577	3,3nF 10% 16V
2253	4822 124 40433	47uF 20% 25V
2257	4822 124 40248	10uF 20% 63V
2258	5322 121 42386	100nF 5% 63V
2259	5322 121 42386	100nF 5% 63V
2260	4822 121 51387	10nF 20% 16V
2261	4822 124 41584	100uF 20% 10V
2263	4822 124 40248	10uF 20% 63V
2300	4822 124 40207	100uF 20% 25V
2320	4822 121 43693	10nF 100V
2321	4822 124 22652	2,2uF 20% 50V
2322	5322 121 42386	100nF 5% 63V
2323	4822 124 81144	1000uF 16V
2324	4822 124 22652	2,2uF 20% 50V
2325	4822 122 33195	100pF 10% 50V
2329	4822 124 81151	22uF 50V
2330	4822 122 33519	470pF 10% 50V
2332	4822 124 81151	22uF 50V
2335	4822 122 33519	470pF 10% 50V
2339	4822 122 33195	100pF 10% 50V
2340	4822 126 12726	47pF 5% 50V
2341	5322 121 42386	100nF 5% 63V
2342	4822 124 40764	22uF 100 V
2343	5322 121 42386	100nF 5% 63V
2344	4822 124 40764	22uF 100 V
2345	2020 561 90365	100nF +80/-20% 50V
2350	2020 012 93547	100uF 20% 63V
2352	4822 124 40248	10uF 20% 63V
2353	4822 124 40248	10uF 20% 63V
2355	2020 012 93547	100uF 20% 63V
2361	5322 121 42386	100nF 5% 63V
2362	5322 121 42386	100nF 5% 63V
2364	5322 121 42386	100nF 5% 63V
2365	5322 121 42386	100nF 5% 63V
2370	2020 561 90365	100nF +80/-20% 50V
2371	2020 561 90365	100nF +80/-20% 50V
2372	4822 122 33197	1nF 10% 50V
2391	4822 124 40769	4,7uF 20% 100V

RESISTORS

3250	4822 116 52256	2k2 5% 0,5W
3251	4822 116 52256	2k2 5% 0,5W
3253	4822 116 83883	470R 5% 0,5W

ELECTRICAL PARTS LIST - LEFT/RIGHT AMPLIFIER & SUPPLY BOARD

3255	4822 116 52213	180R 5% 0,5W
3256	4822 116 52206	120R 5% 0,5W
3257	4822 050 21003	10k 1% 0,6W
3264	4822 050 21003	10k 1% 0,6W
3265	4822 116 52256	2k2 5% 0,5W
3268	4822 116 52244	15k 5% 0,5W
3269	4822 116 83961	6k8 5%
3270	4822 050 11002	1k 1% 0,4W
3271	4822 116 52263	2k7 5% 0,5W
3272	4822 116 52289	5k6 5% 0,5W
3273	4822 116 52228	680R 5% 0,5W
3274	4822 116 52234	100k 5% 0,5W
3275	4822 050 23303	33k 1% 0,6W
3276	4822 116 83884	47k 5% 0,5W
3277	4822 116 52234	100k 5% 0,5W
3279	4822 116 83884	47k 5% 0,5W
3280	4822 116 52303	8k2 5% 0,5W
3281	4822 116 83882	39k 5% 0,5W
3283	4822 116 52228	680R 5% 0,5W
3284	4822 116 83884	47k 5% 0,5W
3285	4822 116 52291	56k 5% 0,5W
3292	4822 116 52269	3k3 5% 0,5W
3295	4822 050 11002	1k 1% 0,4W
3300	4822 116 83883	470R 5% 0,5W
3301	4822 117 12063	NTC DC 5W 10k 5%
3302	4822 116 83876	270R 5% 0,5W
3303	4822 050 11002	1k 1% 0,4W
3304	4822 052 10108	△ 1R 5% 0,33W
3305	4822 116 83876	270R 5% 0,5W
3306	4822 116 83876	270R 5% 0,5W
3307	4822 116 83876	270R 5% 0,5W
3308	4822 050 21003	10k 1% 0,6W
3309	4822 053 10478	4R7 5% 1W
3310	4822 116 83884	47k 5% 0,5W
3311	4822 116 83884	47k 5% 0,5W
3312	4822 116 83876	270R 5% 0,5W
3313	4822 116 83884	47k 5% 0,5W
3314	4822 116 83884	47k 5% 0,5W
3315	4822 116 83884	47k 5% 0,5W
3316	4822 116 83884	47k 5% 0,5W
3317	4822 116 83884	47k 5% 0,5W
3318	4822 116 83884	47k 5% 0,5W
3319	4822 116 52291	56k 5% 0,5W
3320	4822 116 83884	47k 5% 0,5W
3321	4822 116 52234	100k 5% 0,5W
3322	4822 050 21003	10k 1% 0,6W
3323	4822 116 52234	100k 5% 0,5W
3324	4822 116 52234	100k 5% 0,5W
3325	4822 050 23303	33k 1% 0,6W
3326	4822 116 83872	220R 5% 0,5W
3327	4822 050 21003	10k 1% 0,6W
3328	4822 050 11002	1k 1% 0,4W
3329	4822 050 21003	10k 1% 0,6W
3330	4822 116 52234	100k 5% 0,5W
3331	4822 116 52234	100k 5% 0,5W
3332	4822 116 52257	22k 5% 0,5W
3333	4822 050 11002	1k 1% 0,4W
3334	4822 116 52276	3k9 5% 0,5W
3335	4822 116 52207	1k2 5% 0,5W
3336	4822 116 52291	56k 5% 0,5W
3337	4822 116 52228	680R 5% 0,5W
3338	4822 116 52249	1k8 5% 0,5W
3339	4822 050 11002	1k 1% 0,4W
3342	4822 116 52291	56k 5% 0,5W
3343	4822 116 52291	56k 5% 0,5W
3344	4822 116 52186	22R 5% 0,5W

COILS & FILTERS

5300	4822 157 70599	△ IND FXD BEAD EMI
5301	4822 157 70599	△ IND FXD BEAD EMI

DIODES

6250	4822 130 34281	BZX79-C15
6251	4822 130 61219	BZX79-B10
6253	4822 130 30621	1N4148
6254	4822 130 31878	1N4003G
6256	4822 130 30621	1N4148
6257	4822 130 30621	1N4148
6258	4822 130 34173	BZX79-B5V6
6259	4822 130 34278	BZX79-C6V8
6260	4822 130 30621	1N4148
6263	4822 130 30621	1N4148

BRIEF INTRODUCTION OF THE AF9 BOARD

The AF9 Board consists of the following features :

a. TDA7468D IC

TDA7468D IC (7501) which includes functions such as source selection, loudness control, dynamic bass control, treble control, volume control and muting function. Sound features such as ALC, DBB, DSC and IS are controllable via I²C Bus from the microprocessor.

The TDA7468D IC caters for 4 input sources namely TUNER, TAPE, CD and AUX. It also has a Mic mix input. In our application, software will switch the input source to previous source MUTE during STANDBY mode and some other occasions where noise from other input source is undesirable.

Note that the input to the TDA7468D IC must be ac coupled to prevent 'pop' noise.
Input networks are included to provide appropriate attenuation for various sources.

b. SIMPLE MIC MIXING

The AF9 Board has provisions which can be configured to cater for one of the following:
MM : which caters for Mic mixing with additional Mic amplifier board.
NM : non Mic mixing.

c. DOLBY PRO LOGIC (DPL) INTERFACE

The AF9 Board has provisions which can be configured to cater for DPL.

d. LINE OUT

Line out cinch socket for connection to external amplifier.

e. SUB-WOOFER OUT

Sub-woofer out cinch socket for connection to active sub-woofer speaker.

f. INCREDIBLE SURROUND

Incredible surround effect using transistor circuit to create phase shifting and spatial effect.

g. HEADPHONE AMPLIFIER

Headphone amplifier to drive 32 ohm to 1kohm headphone.

h. CD STANDBY CONTROL

CD Standby Control circuit which switches on the supply to CD servo control IC, digital out buffer IC, HF circuit and the laser light pen in CD mode only.

i. ATTENUATION NETWORK

Attenuation network is provided at the output of the AF9 Board for interfacing with power board of different output power.

j. CD DIGITAL OUT

CD Digital out cinch socket for connection to external digital audio decoders.

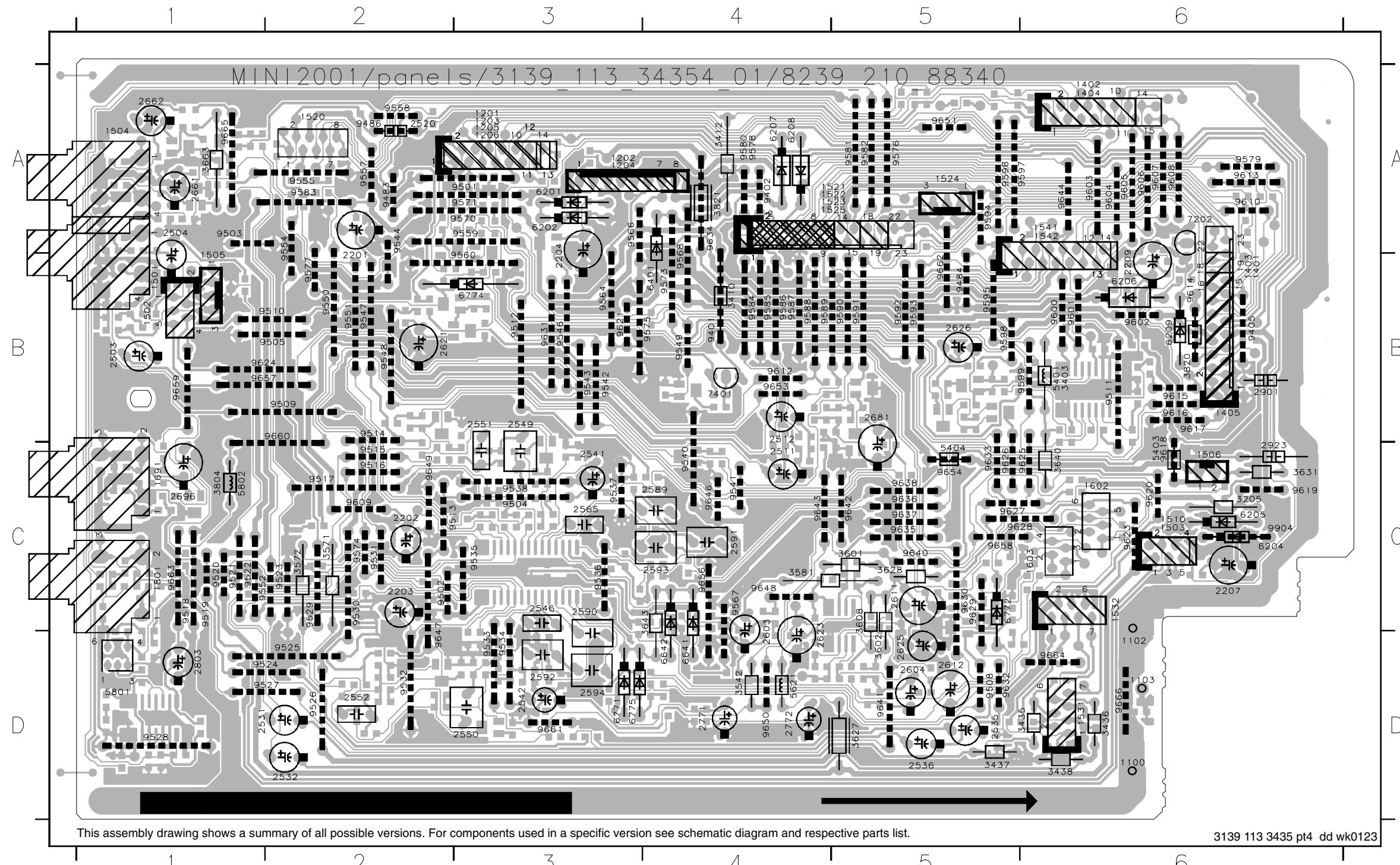
AF9 BOARD

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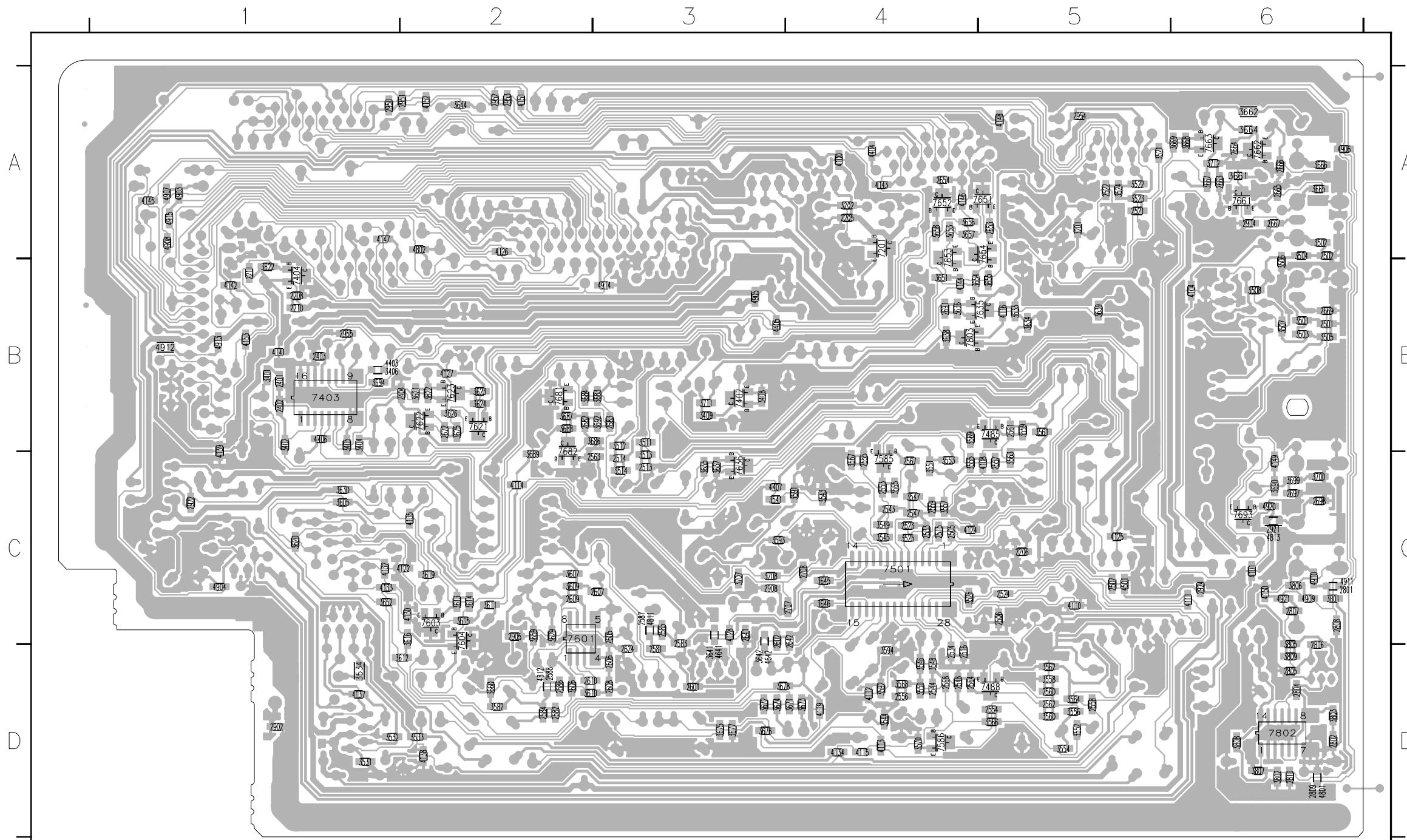
AF9 BOARD - COMPONENT LAYOUT

1100 D6	1503 C6	1603 C6	2535 D5	2603 D4	2923 C6	3627 D5	6202 A3	9401 B4	9513 C2	9529 C2	9547 B2	9570 A3	9587 B4	9603 A6	9620 C6	9637 C5	9657 B1
1102 D6	1504 A1	1691 C1	2536 D5	2604 D5	3205 C6	3628 C5	6204 C6	9402 A4	9514 B2	9530 C2	9548 B2	9571 A3	9588 B4	9604 A6	9621 B3	9638 C5	9658 C5
1103 D6	1505 B1	1801 C1	2541 C3	2611 C5	3403 B6	3631 C6	6205 C6	9405 B6	9515 C2	9531 C2	9549 B4	9573 B4	9589 B4	9605 A6	9623 C6	9640 C5	9659 B1
1201 A3	1506 C6	2201 B2	2542 D3	2612 D5	3410 B4	3640 C6	6206 B6	9483 A2	9516 C2	9532 D2	9550 B2	9574 C2	9590 B5	9606 A6	9624 B1	9641 D5	9660 B2
1202 A3	1510 C6	2202 C2	2546 C3	2621 B2	3412 A4	3643 C4	6207 A4	9484 B5	9517 C2	9533 D3	9551 B2	9575 B4	9591 B5	9607 A6	9625 C6	9642 C5	9661 D3
1203 A3	1520 A2	2203 C2	2549 B3	2623 D4	3435 D6	3663 A1	6208 A4	9486 A2	9518 C1	9534 D3	9552 C1	9576 A5	9592 B5	9608 A6	9626 C5	9643 C4	9662 B5
1204 A3	1521 A5	2204 B3	2550 D3	2625 D5	3436 D6	3804 C1	6209 B6	9501 A3	9519 C1	9535 C3	9554 A2	9577 B2	9593 B5	9609 C2	9627 C5	9644 A6	9663 C1
1205 A3	1522 A5	2207 C6	2551 B3	2626 B5	3437 D5	3820 B6	6401 B4	9502 C4	9520 C1	9536 C3	9555 A2	9578 A4	9594 A5	9610 A6	9628 C5	9646 C4	9664 D6
1206 A3	1523 A5	2209 B6	2552 D2	2661 A1	3438 D6	3821 A4	6641 D4	9503 A1	9521 C1	9537 C3	9557 A2	9579 A6	9595 B5	9612 B4	9629 C5	9647 D2	9665 A1
1401 B6	1524 A5	2503 B1	2565 C3	2662 A1	3542 D4	5401 B6	6642 D4	9504 C3	9522 C1	9538 C3	9558 A2	9580 A4	9596 A5	9613 A6	9630 C5	9648 C4	9666 D6
1402 A6	1525 A1	2504 A1	2589 C4	2681 B5	3571 C2	5403 C6	6771 D3	9505 B2	9523 C2	9540 C4	9559 A3	9581 A5	9597 A6	9614 B6	9631 B3	9649 C2	9904 C6
1403 B6	1531 D6	2511 C4	2590 C3	2696 C1	3572 C2	5404 C5	6772 C5	9508 D5	9524 D2	9541 C4	9560 B3	9582 A5	9598 B5	9615 B6	9632 D5	9650 D4	
1404 A6	1532 C6	2512 B4	2591 C4	2771 D4	3581 C4	5621 D4	6774 B3	9509 B2	9525 D2	9542 B3	9564 B3	9583 A2	9599 B6	9616 B6	9633 C5	9651 A5	
1405 B6	1541 A6	2520 A2	2592 D3	2772 D4	3601 C5	5801 D1	6775 D3	9510 D3	9526 D2	9543 B3	9566 A3	9584 B4	9600 B6	9617 B6	9634 A4	9653 B4	
1501 B1	1542 A6	2531 D1	2593 C4	2803 D1	3602 D5	5802 C1	7202 A6	9511 B6	9527 D2	9544 A2	9567 C4	9585 B4	9601 B6	9618 C6	9635 C5	9654 C5	
1502 B1	1602 C6	2532 D2	2594 D3	2901 B6	3608 C5	6201 A3	7401 B4	9512 B3	9528 D1	9546 B3	9568 B4	9586 B4	9602 B6	9619 C6	9636 C5	9656 C4	

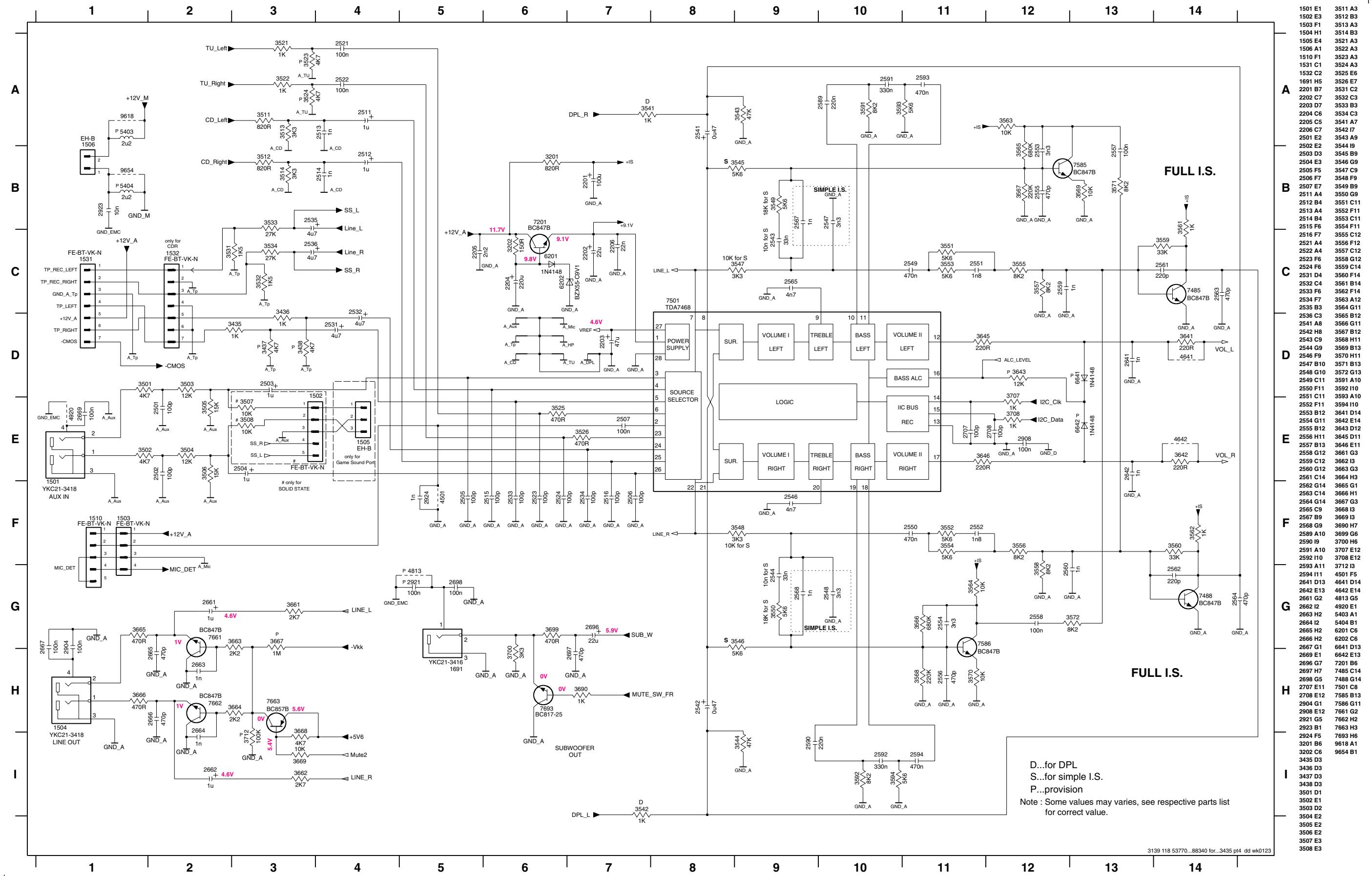


AF9 BOARD - CHIP LAYOUT

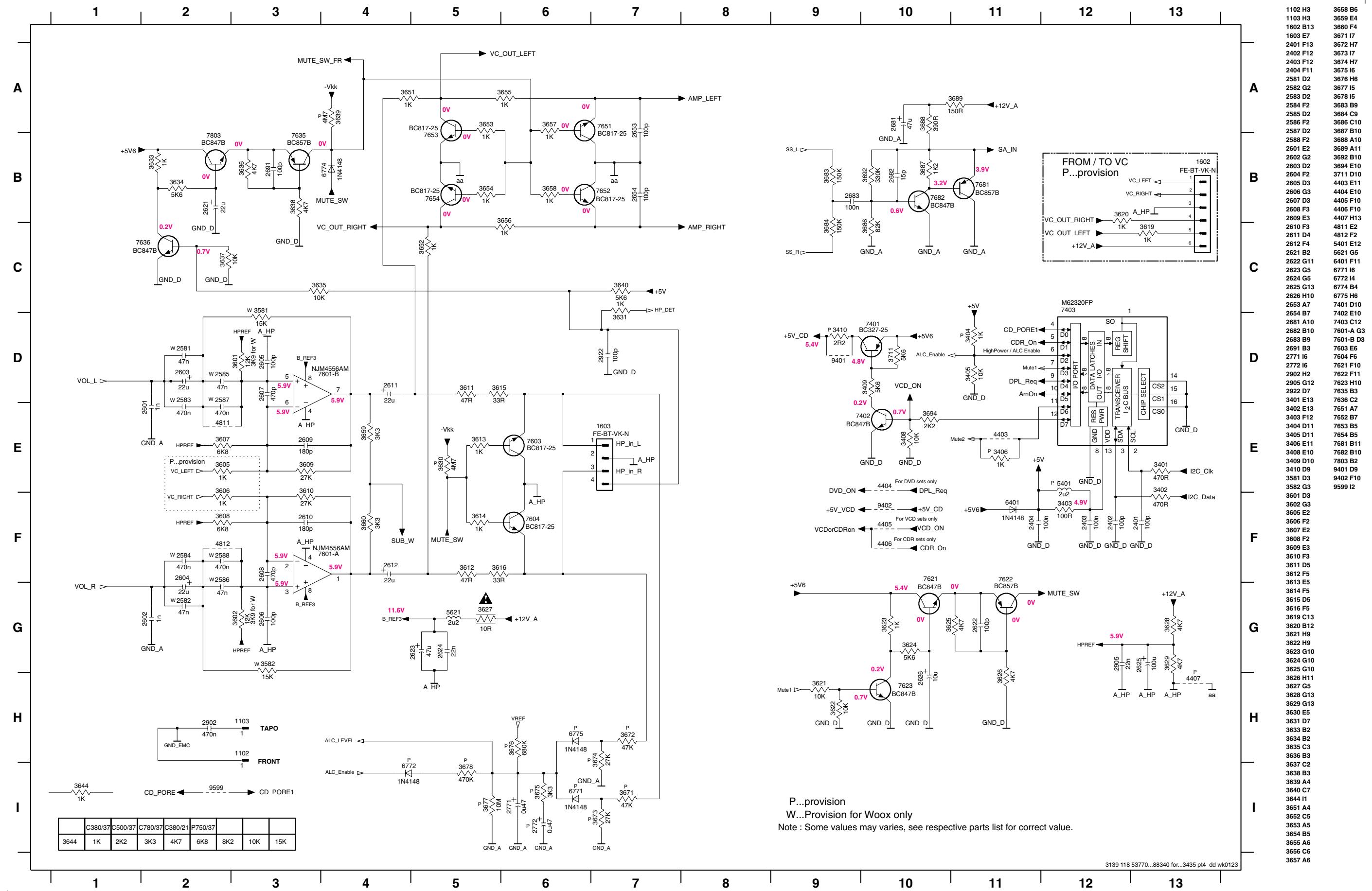
2205 A4	2523 C4	2567 C4	2641 C3	2805 D6	3202 A4	3521 A5	3552 D5	3591 C4	3624 B2	3654 B4	3676 D3	3803 D6	4124 C4	4148 A5	4904 C1	7501 C4	7693 C6
2206 C5	2524 C5	2568 D4	2642 C4	2806 D6	3401 B1	3522 A5	3553 C4	3592 D4	3625 B2	3655 B5	3677 D3	3805 C6	4125 C5	4149 C6	4905 B3	7585 C4	7802 D6
2208 B1	2533 C4	2581 D3	2653 A5	2807 C6	3402 B1	3523 A5	3554 D5	3593 C3	3626 B2	3656 A4	3678 D3	3806 C6	4126 A2	4150 C6	4906 A6	7586 D4	7803 B4
2210 B1	2534 D4	2582 D2	2654 A4	2808 C6	3404 B1	3524 A5	3555 C4	3594 D4	3629 C2	3657 A4	3683 B3	3807 D6	4127 B2	4151 A2	4907 A1	7601 C2	
2211 B1	2543 C4	2583 C3	2663 A6	2809 D6	3405 B1	3525 C4	3556 D5	3605 C1	3630 C1	3658 A4	3684 B2	3808 D6	4128 C3	4152 A2	4908 A1	7603 C2	
2401 B1	2544 D4	2584 D2	2664 A6	2810 D6	3406 B1	3526 C4	3557 C4	3606 D2	3633 B5	3659 C2	3686 B3	3809 D6	4130 C2	4153 B1	4909 C6	7604 C2	
2402 B1	2547 C4	2585 C3	2665 A6	2902 D1	3408 B3	3531 D1	3558 D5	3607 C2	3634 B5	3660 D2	3687 B2	3822 B1	4132 C1	4403 B1	4910 C6	7621 B2	
2403 B1	2548 D4	2586 D2	2666 A6	2904 A6	3409 B3	3532 D1	3559 B5	3609 C2	3635 C3	3661 A6	3688 B2	4100 A4	4133 C1	4404 A4	4911 C6	7622 B2	
2404 B2	2553 C4	2587 C3	2667 A6	2905 C2	3501 B6	3533 D2	3560 D5	3610 D2	3636 B4	3662 A6	3689 C2	4101 C6	4134 C4	4405 B3	4912 B1	7623 B2	
2501 B6	2554 D5	2588 D2	2669 B6	2908 C3	3502 A6	3534 D1	3561 B5	3611 C2	3637 C3	3664 A6	3690 C6	4104 B6	4135 C2	4406 B1	4913 B1	7635 B5	
2502 A6	2555 C4	2601 D3	2682 B2	2921 C6	3503 B6	3541 C3	3562 D5	3612 D2	3638 B4	3665 A6	3692 B3	4108 C5	4137 D1	4407 C3	4914 B3	7636 C3	
2505 C4	2556 D4	2602 C3	2683 B3	2922 C1	3504 A6	3543 C4	3563 C5	3613 C2	3639 B5	3666 A6	3694 B1	4110 C5	4138 D2	4501 C5	4915 A1	7651 A5	
2506 C5	2557 C5	2605 C3	2691 B4	2924 C6	3505 B6	3544 D4	3564 D5	3614 C2	3641 D3	3667 A6	3699 C6	4111 C6	4139 B1	4641 D3	4920 C6	7652 A4	
2507 C5	2558 D5	2606 D3	2697 C6	2950 A1	3506 B6	3545 C4	3565 C4	3615 C2	3642 D3	3668 A6	3700 C6	4112 D4	4141 B1	4642 D3	4921 C6	7653 A4	
2513 C3	2559 C4	2607 C3	2698 C6	2951 A2	3507 B6	3546 D4	3566 D5	3616 C2	3644 A2	3669 A6	3707 C3	4113 D4	4142 B1	4801 D6	7201 A4	7654 A5	
2514 C3	2560 D5	2608 D3	2707 C4	2952 A2	3508 B6	3547 C4	3567 C4	3619 C2	3645 C4	3671 D4	3708 C3	4114 C2	4143 A4	4802 A2	7402 B3	7661 A6	
2515 C4	2561 B5	2609 C2	2708 C4	2953 A2	3511 B3	3548 D4	3568 D4	3620 C1	3646 C4	3672 D3	3711 B3	4115 D4	4144 B4	4811 C3	7403 B1	7662 A6	
2516 D4	2562 D5	2610 D2	2801 C6	2954 A5	3512 B3	3549 C4	3569 B4	3621 B2	3651 B4	3673 D4	3712 A6	4116 B5	4145 A1	4812 D2	7404 B1	7663 A6	
2521 A5	2563 C3	2622 B2	2802 D6	2955 B1	3513 C3	3550 D4	3570 D4	3622 B2	3652 C1	3674 D3	3801 C6	4119 D4	4146 A4	4813 C6	7485 B5	7681 B2	
2522 A5	2564 D4	2624 D3	2804 D6	3201 A5	3514 C3	3551 C4	3582 D2	3623 B2	3653 A4	3675 D3	3802 D6	4122 C2	4147 A1	4903 A1	7488 D5	7682 B2	



AF9 BOARD - CIRCUIT DIAGRAM (PART 1)

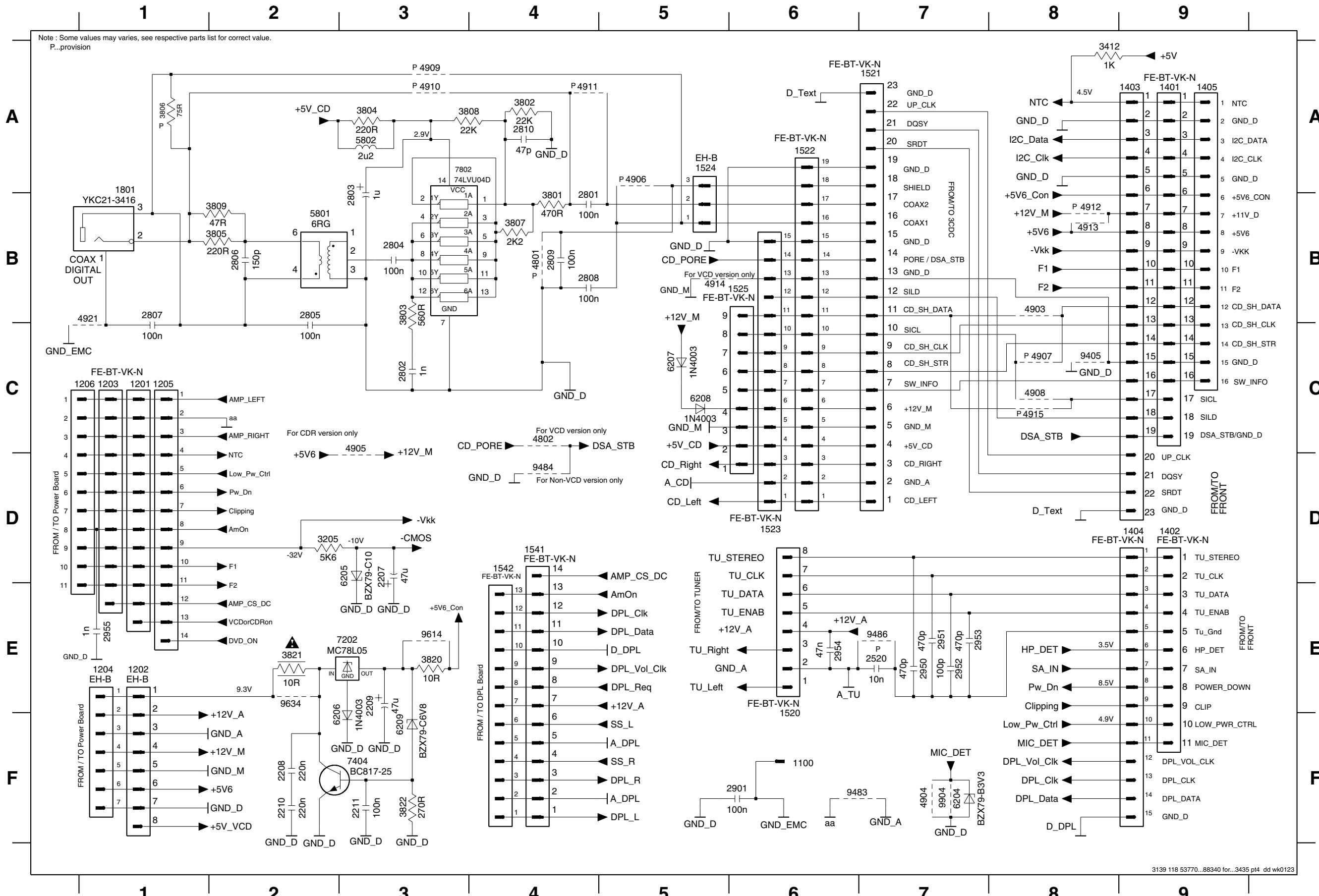


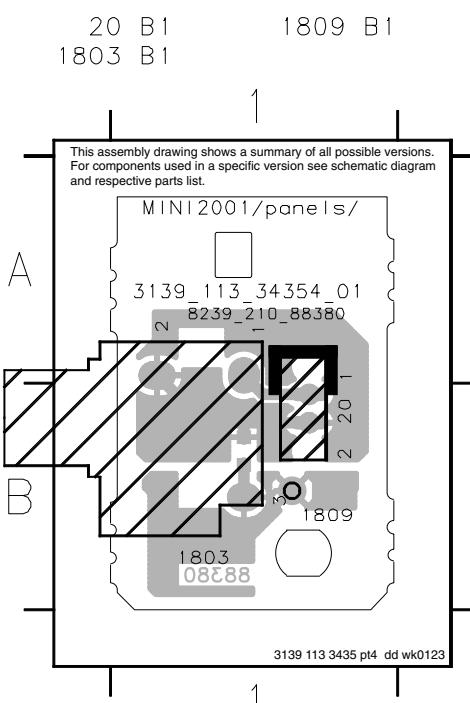
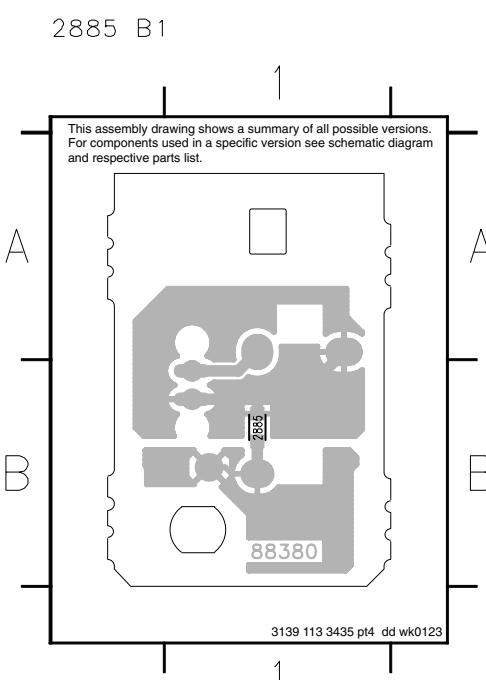
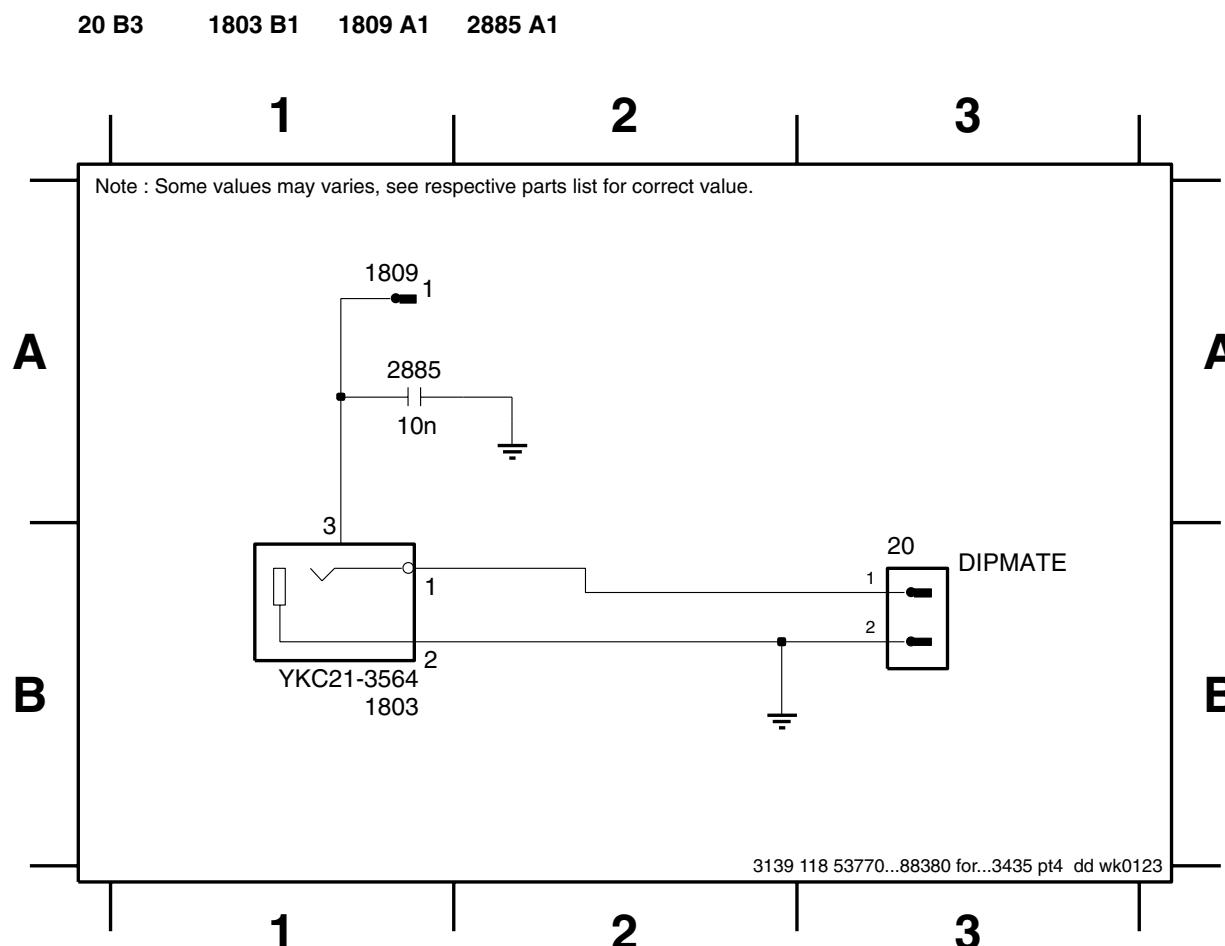
AF9 BOARD - CIRCUIT DIAGRAM (PART 2)



AF9 BOARD - CIRCUIT DIAGRAM (PART 3)

1100 F6	1203 C1	1206 C1	1403 A9	1520 E6	1523 D6	1541 D4	2207 D3	2210 F2	2801 B4	2804 B3	2807 B1	2810 A4	2951 E7	2954 E6	3412 A8	3803 B3	3806 A1	3809 B2	3822 F3	4903 B8	4906 A5	4909 A3	4912 B8	4915 C8	5802 A3	6206 F3	6209 F3	7802 A3	9484 D4	9634 E2
1201 C1	1204 E1	1401 A9	1404 D9	1521 A7	1524 A5	1542 D4	2208 F2	2211 F3	2802 C3	2805 B2	2901 F6	2952 E7	2955 E1	3801 B4	3804 A3	3807 B4	3820 E3	4801 B4	4904 F7	4907 C8	4910 A3	4913 B8	4921 B1	6204 F7	6207 C5	7202 E3	9405 C8	9486 E7	9904 F7	
1202 E1	1205 C1	1204 D9	1405 A9	1522 A6	1525 B5	1801 A1	2209 E3	2520 E7	2803 B3	2806 B2	2809 B4	2950 E7	2953 E7	3205 D2	3802 A4	3805 B2	3808 A3	3821 E2	4802 C4	4905 C3	4908 C8	4911 A4	4914 B5	5802 B2	6205 D3	6208 C5	7403 F4	9483 F6	9614 E3	



**VIDEO OUT CINCH BOARD -
COMPONENT LAYOUT**

**VIDEO OUT CINCH BOARD -
CHIP LAYOUT**

VIDEO OUT CINCH PART - CIRCUIT DIAGRAM

ELECTRICAL PARTS LIST - AF9 BOARD
MISCELLANEOUS

1206	4822 267 11039	Flex Connector 11P	2548	5322 126 11579	3,3nF 10% 63V
1401	4822 265 11553	Flex Connector 19P	2565	4822 121 43856	4,7nF 5% 250V
1402	4822 267 11039	Flex Connector 11P	2567	3198 016 31020	1nF 25V
1501	4822 265 20553	Cinch Socket - Aux in	2568	3198 016 31020	1nF 25V
1520	4822 265 11515	Flex Connector 8P	2589	4822 121 42408	220nF 5% 63V
1523	4822 265 10981	Flex Connector 15P	2590	4822 121 42408	220nF 5% 63V
1531	4822 267 10953	Flex Connector 7P	2591	5322 121 42661	330nF 5% 63V
1603	4822 267 10733	Flex Connector 4P	2592	5322 121 42661	330nF 5% 63V
			2593	4822 121 51252	470nF 5% 63V
			2594	4822 121 51252	470nF 5% 63V

CAPACITORS

2201	4822 124 40207	100uF 20% 25V	2601	3198 016 31020	1nF 25V
2202	4822 124 81151	22uF 50V	2602	3198 016 31020	1nF 25V
2203	4822 124 40433	47uF 20% 25V	2603	4822 124 81151	22uF 50V
2204	4822 124 40196	220uF 20% 16V	2604	4822 124 81151	22uF 50V
2205	4822 126 14238	2,2nF 50V	2605	4822 122 31765	100pF 2% 63V
2206	4822 126 14494	22nF 10% 25V	2606	4822 122 31765	100pF 2% 63V
2207	4822 124 40433	47uF 20% 25V	2607	4822 126 13881	470pF 5% 50V
2208	4822 126 13879	220nF +80/-20% 16V	2608	4822 126 13881	470pF 5% 50V
2209	4822 124 41751	47uF 20% 50V	2609	4822 126 14508	180pF 5% 50V
2210	4822 126 13879	220nF +80/-20% 16V	2610	4822 126 14508	180pF 5% 50V
2401	4822 122 31765	100pF 2% 63V	2611	4822 124 81151	22uF 50V
2402	4822 122 31765	100pF 2% 63V	2612	4822 124 81151	22uF 50V
2403	4822 126 14305	100nF 10% 16V	2621	4822 124 81151	22uF 50V
2404	4822 126 14305	100nF 10% 16V	2622	4822 122 31765	100pF 2% 63V
2501	4822 122 31765	100pF 2% 63V	2623	4822 124 40433	47uF 20% 25V
2502	4822 122 31765	100pF 2% 63V	2624	3198 017 42230	22nF 50V
2503	4822 124 22466	1uF 20% 50V	2625	4822 124 40207	100uF 20% 25V
2504	4822 124 22466	1uF 20% 50V	2626	4822 124 40769	4,7uF 20% 100V
2505	4822 122 31765	100pF 2% 63V	2641	3198 016 31020	1nF 25V
2506	4822 122 31765	100pF 2% 63V	2642	3198 016 31020	1nF 25V
2507	4822 126 14305	100nF 10% 16V	2653	4822 122 31765	100pF 2% 63V
2511	4822 124 22466	1uF 20% 50V	2654	4822 122 31765	100pF 2% 63V
2512	4822 124 22466	1uF 20% 50V	2669	4822 126 14305	100nF 10% 16V
2513	3198 016 31020	1nF 25V	2681	4822 124 40433	47uF 20% 25V
2514	3198 016 31020	1nF 25V	2682	4822 122 33752	15pF 5% 50V
2515	4822 122 31765	100pF 2% 63V	2683	4822 126 14305	100nF 10% 16V
2516	4822 122 31765	100pF 2% 63V	2691	4822 122 31765	100pF 2% 63V
2521	4822 126 14305	100nF 10% 16V	2707	4822 122 31765	100pF 2% 63V
2522	4822 126 14305	100nF 10% 16V	2708	4822 122 31765	100pF 2% 63V
2523	4822 122 31765	100pF 2% 63V	2771	4822 124 41407	0,47uF 20% 63V
2524	4822 122 31765	100pF 2% 63V	2901	4822 126 12882	100nF +80/-20% 50V
2531	4822 124 40769	4,7uF 20% 100V	2902	3198 017 44740	470nF 10V
2532	4822 124 40769	4,7uF 20% 100V	2905	3198 017 42230	22nF 50V
2533	4822 122 31765	100pF 2% 63V	2908	4822 126 14305	100nF 10% 16V
2534	4822 122 31765	100pF 2% 63V	2950	4822 126 13881	470pF 5% 50V
2535	4822 124 40769	4,7uF 20% 100V	2951	4822 126 13881	470pF 5% 50V
2536	4822 124 40769	4,7uF 20% 100V	2952	4822 122 31765	100pF 2% 63V
2541	4822 124 41407	0,47uF 20% 63V	2953	4822 126 13881	470pF 5% 50V
2542	4822 124 41407	0,47uF 20% 63V			
2543	5322 126 11583	10nF 10% 50V			
2544	5322 126 11583	10nF 10% 50V			
2546	4822 121 43856	4,7nF 5% 250V			
2547	5322 126 11579	3,3nF 10% 63V			

RESISTORS

3201	4822 117 12968	820R 5% 0,62W
3202	4822 051 30151	150R 5% 0,062W
3205	4822 116 52289	5k6 5% 0,5W

ELECTRICAL PARTS LIST - AF9 BOARD**RESISTORS**

3401	4822 051 30471	470R 5% 0,062W
3402	4822 051 30471	470R 5% 0,062W
3403	4822 116 52175	100R 5% 0,5W
3405	4822 051 30103	10k 5% 0,062W
3408	4822 051 30103	10k 5% 0,062W
3409	4822 051 30562	5k6 5% 0,063W
3412	4822 050 11002	1k 1% 0,4W
3435	4822 050 11002	1k 1% 0,4W
3436	4822 050 11002	1k 1% 0,4W
3501	4822 051 30472	4k7 5% 0,062W
3502	4822 051 30472	4k7 5% 0,062W
3503	4822 051 30123	12k 5% 0,062W
3504	4822 051 30123	12k 5% 0,062W
3505	4822 051 30153	15k 5% 0,062W
3506	4822 051 30153	15k 5% 0,062W
3511	4822 117 12968	820R 5% 0,62W
3512	4822 117 12968	820R 5% 0,62W
3513	4822 051 30332	3k3 5% 0,062W
3514	4822 051 30332	3k3 5% 0,062W
3521	4822 051 30102	1k 5% 0,062W
3522	4822 051 30102	1k 5% 0,062W
3525	4822 051 30471	470R 5% 0,062W
3526	4822 051 30471	470R 5% 0,062W
3531	4822 051 30152	1k5 5% 0,062W
3532	4822 051 30152	1k5 5% 0,062W
3533	4822 051 30273	27k 5% 0,062W
3534	4822 051 30273	27k 5% 0,062W
3543	4822 117 12925	47k 1% 0,063W
3544	4822 117 12925	47k 1% 0,063W
3545	4822 051 30562	5k6 5% 0,063W
3546	4822 051 30562	5k6 5% 0,063W
3547	4822 051 30103	10k 5% 0,062W
3548	4822 051 30103	10k 5% 0,062W
3549	4822 051 30183	18k 5% 0,062W
3550	4822 051 30183	18k 5% 0,062W
3591	4822 117 12902	8k2 1% 0,063W
3592	4822 117 12902	8k2 1% 0,063W
3593	4822 051 30562	5k6 5% 0,063W
3594	4822 051 30562	5k6 5% 0,063W
3601	4822 116 52238	12k 5% 0,5W
3602	4822 116 52238	12k 5% 0,5W
3607	4822 051 30682	6k8 5% 0,062W
3608	4822 116 83961	6k8 5%
3609	4822 051 30273	27k 5% 0,062W
3610	4822 051 30273	27k 5% 0,062W
3611	4822 051 30479	47R 5% 0,062W
3612	4822 051 30479	47R 5% 0,062W
3613	4822 051 30102	1k 5% 0,062W
3614	4822 051 30102	1k 5% 0,062W
3615	4822 051 30339	33R 5% 0,062W
3616	4822 051 30339	33R 5% 0,062W
3621	4822 051 30103	10k 5% 0,062W
3622	4822 051 30103	10k 5% 0,062W
3623	4822 051 30102	1k 5% 0,062W
3624	4822 051 30562	5k6 5% 0,063W
3625	4822 051 30472	4k7 5% 0,062W
3626	4822 051 30472	4k7 5% 0,062W
3627	4822 052 10109	△ 10R 5% 0,33W
3628	4822 116 52283	4k7 5% 0,5W
3629	4822 051 30472	4k7 5% 0,062W
3631	4822 050 11002	1k 1% 0,4W
3633	4822 051 30102	1k 5% 0,062W
3634	4822 051 30562	5k6 5% 0,063W
3635	4822 051 30103	10k 5% 0,062W
3636	4822 051 30472	4k7 5% 0,062W
3637	4822 051 30103	10k 5% 0,062W
3638	4822 051 30472	4k7 5% 0,062W
3640	4822 116 52289	5k6 5% 0,5W
3644	4822 051 30102	1k 5% 0,062W
3645	4822 051 30221	220R 5% 0,062W
3646	4822 051 30221	220R 5% 0,062W
3651	4822 051 30102	1k 5% 0,062W
3652	4822 051 30102	1k 5% 0,062W
3653	4822 051 30102	1k 5% 0,062W
3654	4822 051 30102	1k 5% 0,062W
3655	4822 051 30102	1k 5% 0,062W
3656	4822 051 30102	1k 5% 0,062W
3657	4822 051 30102	1k 5% 0,062W
3658	4822 051 30102	1k 5% 0,062W
3663	4822 051 30154	150k 5% 0,062W
3684	4822 051 30154	150k 5% 0,062W
3686	4822 117 12864	82k 5% 0,6W
3687	4822 117 11817	1k2 1% 1/16W
3688	4822 051 30391	390R 5% 0,062W
3689	4822 051 30151	150R 5% 0,062W
3692	4822 051 30334	330k 5% 0,062W
3694	4822 051 30222	2k2 5% 0,062W
3707	4822 051 30102	1k 5% 0,062W
3708	4822 051 30102	1k 5% 0,062W
3711	4822 051 30562	5k6 5% 0,063W
3820	4822 116 52176	10R 5% 0,5W
3821	4822 052 10109	△ 10R 5% 0,33W
4100	4822 051 30008	0R Jumper 0603
4101	4822 051 30008	0R Jumper 0603
4104	4822 051 30008	0R Jumper 0603
4108	4822 051 30008	0R Jumper 0603
4110	4822 051 30008	0R Jumper 0603
4111	4822 051 30008	0R Jumper 0603
4112	4822 051 30008	0R Jumper 0603
4113	4822 051 30008	0R Jumper 0603
4114	4822 051 30008	0R Jumper 0603
4115	4822 051 30008	0R Jumper 0603
4116	4822 051 30008	0R Jumper 0603
4119	4822 051 30008	0R Jumper 0603
4122	4822 051 30008	0R Jumper 0603
4124	4822 051 30008	0R Jumper 0603

ELECTRICAL PARTS LIST - AF9 BOARD

4125	4822 051 30008	0R Jumper 0603	7501	9322 150 74668	TDA7468D
4126	4822 051 30008	0R Jumper 0603	7601	4822 209 31378	NJM4556AM
4127	4822 051 30008	0R Jumper 0603	7603	4822 130 42804	BC817-25
4128	4822 051 30008	0R Jumper 0603	7604	4822 130 42804	BC817-25
4130	4822 051 30008	0R Jumper 0603	7621	5322 130 60159	BC847B
4132	4822 051 30008	0R Jumper 0603	7622	4822 130 60373	BC857B
4133	4822 051 30008	0R Jumper 0603	7623	5322 130 60159	BC847B
4134	4822 051 30008	0R Jumper 0603	7635	4822 130 60373	BC857B
4135	4822 051 30008	0R Jumper 0603	7636	5322 130 60159	BC847B
4137	4822 051 30008	0R Jumper 0603	7651	4822 130 42804	BC817-25
4138	4822 051 30008	0R Jumper 0603	7652	4822 130 42804	BC817-25
4139	4822 051 30008	0R Jumper 0603	7653	4822 130 42804	BC817-25
4141	4822 051 30008	0R Jumper 0603	7654	4822 130 42804	BC817-25
4142	4822 051 30008	0R Jumper 0603	7681	4822 130 60373	BC857B
4143	4822 051 30008	0R Jumper 0603	7682	5322 130 60159	BC847B
4144	4822 051 30008	0R Jumper 0603	7803	5322 130 60159	BC847B

Note : Only the parts mentioned in this list are normal service spare parts.

COILS & FILTERS

5621	4822 157 62552	Coil 2,2uH 5%
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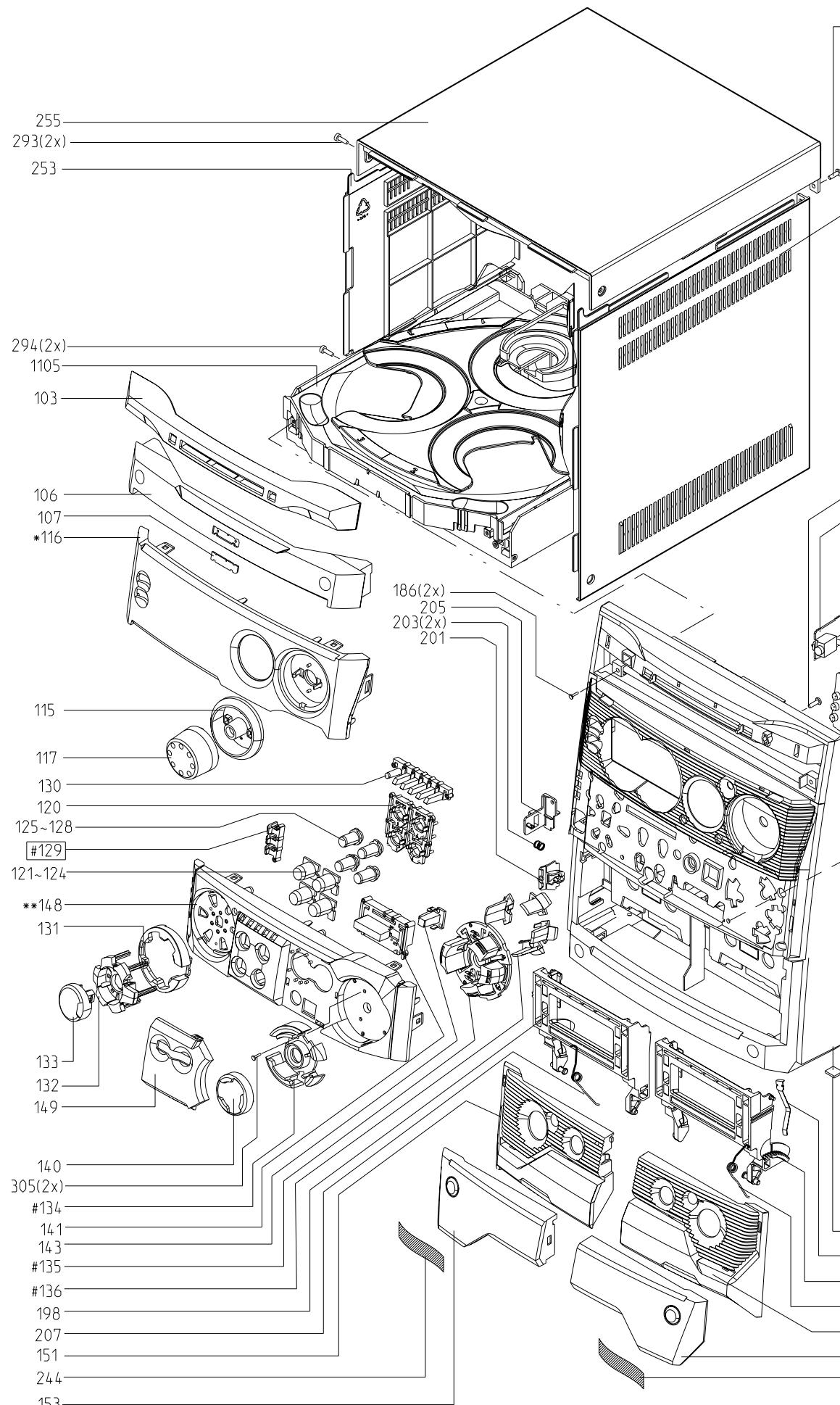
DIODES

6201	4822 130 30621	1N4148

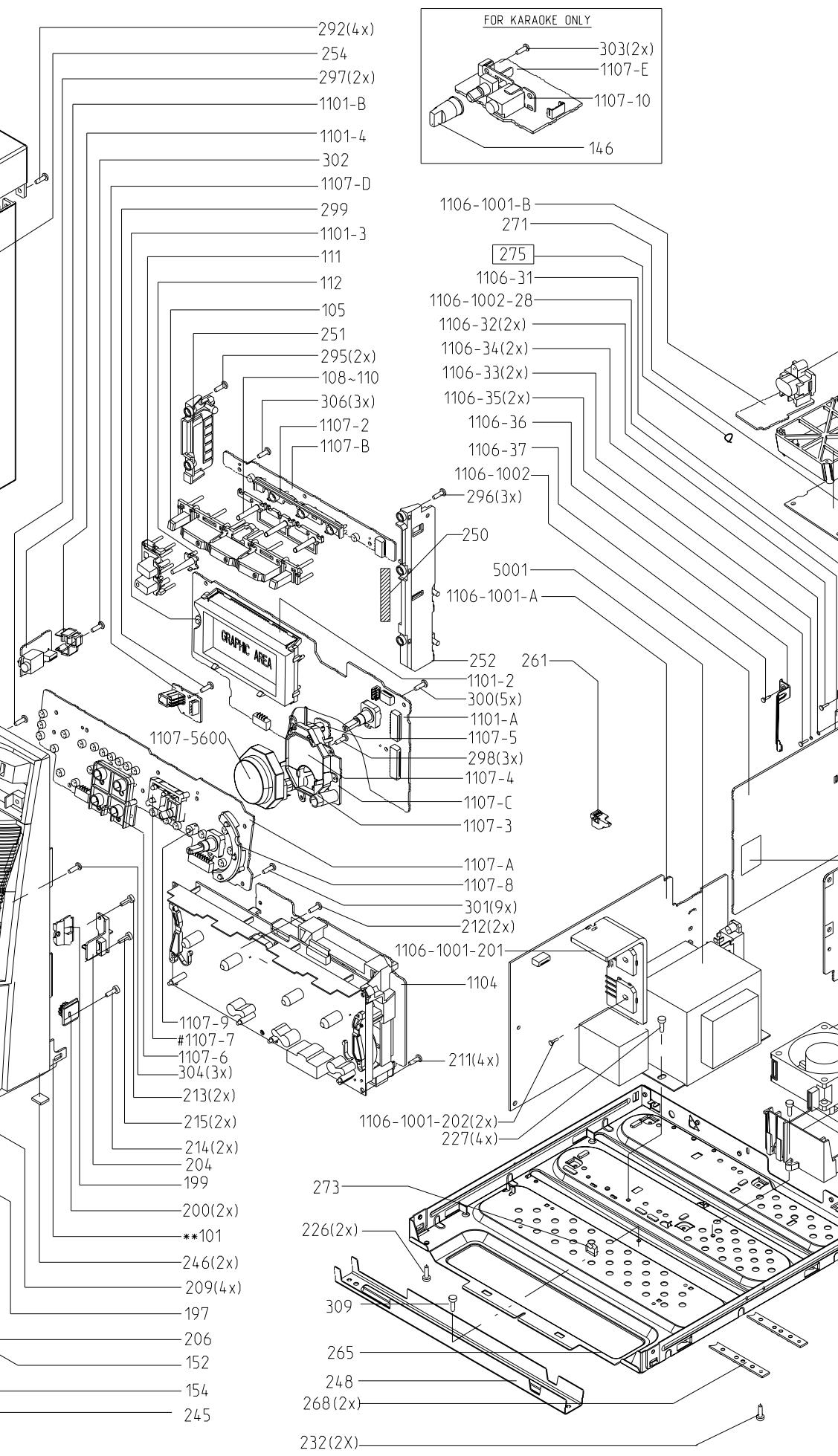
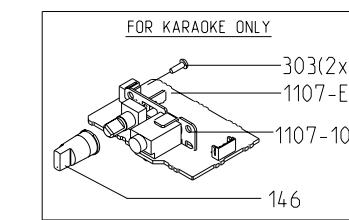
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13-1

SET MECHANICAL EXPLODED VIEW



13-1



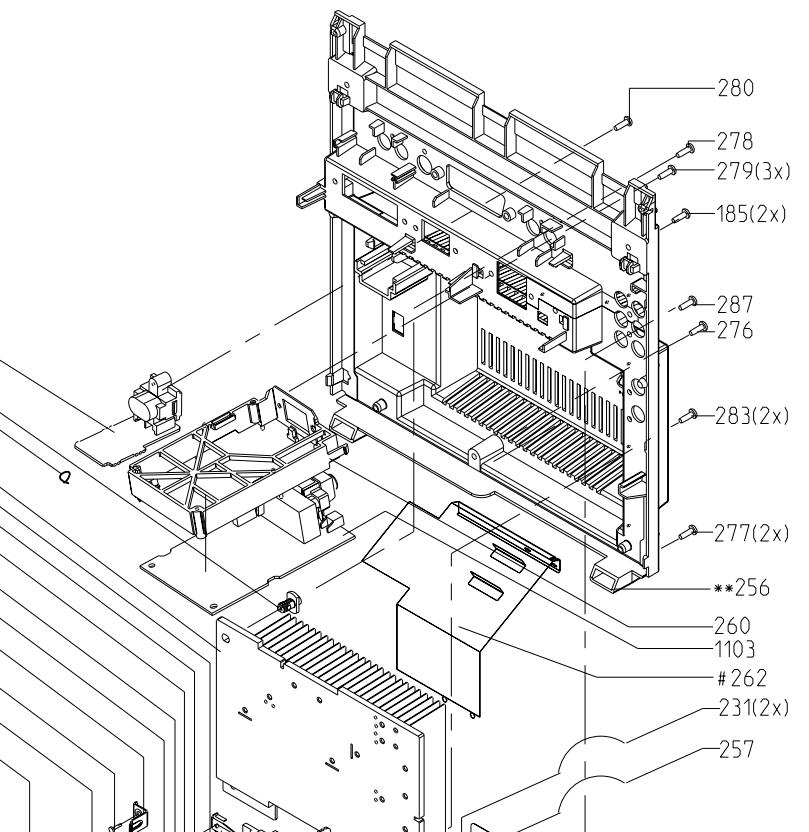
* HOLES NOT IN ALL VERSION

VARIES IN SHAPE ONLY

** VARIES IN SHAPE AND
HOLES NOT IN ALL VERSION

□ NOT IN ALL VERSION

13-1



MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

SCREW LISTS - MAIN UNIT